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TROIS ESSAIS SUR LES CONTRAINTES DE FINANCEMENT ET LES ACTIONS SOCIALES DE L'ENTREPRISE

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LISTE DES ABRÉVIATIONS, SIGLES ET ACRONYMES

CAPM	Capital Asset Pricing Model
CAR	Cumulative Abnormal Return
CSA	Corporate Social Actions
CSP	Corporate Social Performance
CSR	Corporate Social Responsibility
DSI 400	Domini Social Index
ISR	Investissement Socialement Responsable
KLD	Kinder, Lydenberg, Domini & Co.
SIF	Social Investment Forum
S&P500	Standard and Poor's 500

RÉSUMÉ

La présente thèse se compose de trois essais qui portent sur la relation entre les actions sociales de l'entreprise et ses contraintes de financement. Elle utilise un large panel de 17 362 observations sur des entreprises américaines et ce entre 1991 et 2007.

Le premier essai examine l'effet de l'engagement social de l'entreprise sur son accès aux capitaux externes. Les résultats montrent d'une part qu'un niveau élevé d'actions sociales discrétionnaires affecte négativement l'accès au financement externe pour les entreprises financièrement contraintes, alors qu'elles sont sans effet pour les entreprises non contraintes. D'autre part, les résultats obtenus révèlent qu'un niveau élevé de faiblesses sociales a un effet négatif sur l'accès au financement externe à la fois pour les entreprises financièrement contraintes et celles non contraintes.

Dans le deuxième essai, on évalue l'impact des contraintes de financement de l'entreprise sur l'investissement de celle-ci dans les activités sociales. Les résultats obtenus montrent que les contraintes de financement affectent négativement les actions sociales discrétionnaires et que la sensibilité de celles-ci aux cash flows est plus faible pour les entreprises financièrement contraintes. En conséquence, les contraintes de financement amène les entreprises au moins à réduire leur engagement dans les activités sociales. De plus, les résultats indiquent que les actions sociales non-discrétionnaires ne sont pas affectées par l'accès aux marchés financiers.

Le troisième essai étudie l'impact des actions sociales sur la valeur de l'entreprise étant donné le niveau d'accès au financement externe de celle-ci. Les résultats obtenus révèlent que les actions sociales peuvent être destructrices ou protectrices de valeur. Quand l'entreprise est contrainte financièrement, nous avons trouvé que l'effet réducteur de valeur des activités sociales discrétionnaires est tempéré, alors que l'effet protecteur des non-discrétionnaires est plus prononcé.

Mot clés: Actions Sociales, Forces, Faiblesses, Contraintes de financement, Investissement, Cash flows, Valeur de l'entreprise.

ABSTRACT

This thesis consists of three essays on the relationship between corporate social actions and financial constraints. It uses a large unbalanced panel data set of 17 362 US firm-year observations from 1991 to 2007.

The first essay investigates the differential effect of high corporate social actions (CSA) scores on a firm's access to external financing. Our findings reveal that high levels of discretionary social actions have a negative impact on access to external capital for financially constrained firms, whereas they have no effect for financially unconstrained firms. We also find that no "social conscience" reflected in higher social concerns scores has a negative effect on access to financial markets for both financially constrained and unconstrained firms.

In the second essay, we examine whether financial constraints faced by firms affect their social actions. Our results show that financial constraints negatively affect discretionary corporate social actions and that aggregated and strengths-based CSA measures have lower net sensitivity to free cash flows for financially constrained firms. Thus, financial constraints cause firms at least to reduce their commitment to social activities. In addition, our findings indicate that non-discretionary CSA dealing with social concerns are not affected by a firm's internal liquidity and access to external financing.

The third essay explores whether financial constraints affect the relationship between a firm's market value and a firm's social actions. Our findings reveal that corporate social actions might be either value reducing or protecting. When the firm is financially constrained, we found that the reducing effect of discretionary social activities is tempered while the protecting effect of those that are non-discretionary is enhanced.

Keywords: Corporate Social Actions, Strengths, Concerns, Financial Constraints, Investment, Cash flows, Firm value.

INTRODUCTION GÉNÉRALE

La présente thèse porte sur les contraintes de financement et l'engagement social de l'entreprise. Dans ce chapitre introductif, nous définissons ces deux concepts et nous présentons trois relations qui pourraient les lier.

1. Contraintes de financement

Dans un contexte de marchés financiers parfaits, les décisions d'investissement des entreprises sont indépendantes de celles de financement (Modigliani et Miller, 1958). Ceci implique que les financements interne et externe de l'entreprise sont parfaitement substituables et, par conséquent, que la disponibilité de la liquidité interne n'a aucun impact sur l'investissement. Néanmoins, l'existence d'imperfections de marchés, telle que l'asymétrie d'information entre l'entreprise et les bailleurs de capital externe, rend le financement externe plus onéreux que l'interne (Myers et Majluf, 1984). Le comportement d'investissement de l'entreprise devient alors contraint tant par l'importance des fonds internes que par le coût du financement externe. Par conséquent, dès que la liquidité interne de l'entreprise s'avère insuffisante pour financer ses besoins d'investissement ou qu'il y a un écart entre ses coûts de financements interne et externe, celle-ci est considérée comme contrainte financièrement.[1]

Les résultats de Fazzari *et al.* (1988) montrant que l'investissement des entreprises à faible taux de distribution des dividendes (i.e. celles plus susceptibles d'être contraintes financièrement) est plus affecté par la disponibilité des fonds internes que ne l'est l'investissement des entreprises ayant un fort taux de distribution des dividendes (i.e. celles plus susceptibles d'être non-contraintes financièrement) ont catalysé tout un courant de

[1] Les contraintes de financement réfèrent à toutes les imperfections du marché financier, dont les contraintes d'emprunt ou d'émission de capital actions, qui empêchent l'entreprise de financer l'ensemble de ses investissements profitables (Lamont *et al.*, 2001).

littérature interprétant la sensibilité de l'investissement aux cash flows comme un signal de la présence des contraintes de financements (Hoshi *et al.*,1991; Bond et Meghir, 1994; Gilchrist et Himmelberg, 1995; Hubbard, 1998 pour une revue de littérature plus étendue). Toutefois, Kaplan et Zingales (1997) ont critiqué la classification par Fazzari *et al.* (1988) des entreprises considérées financièrement contraintes. En s'appuyant sur des données à la fois quantitatives et qualitatives des rapports financiers, ils proposent une autre classification qu'ils appliquent au sous-échantillon d'entreprises financièrement contraintes de Fazzari *et al.* (1988). Leurs résultats montrent, a contrario, que les entreprises les moins contraintes financièrement présentent la sensibilité la plus élevée de leur investissement aux cash flows. En se basant sur un plus grand échantillon et une autre méthode de classification des contraintes de financements des entreprises, Cleary (1999) confirme leurs conclusions. Ainsi, selon ces deux études, une sensibilité élevée de l'investissement aux cash flows ne peut être interprétée comme une évidence de la présence des contraintes de financements.

Les études subséquentes ont plutôt cherché à expliquer et à réconcilier ces divergences. Ainsi, selon Allayannis et Mozumdar (2004), les résultats de Kaplan et Zingales (1997) et ceux de Cleary (1999) sont affectés par des observations ayant des cash flows négatifs mais aussi par des observations influentes[2] dans le cas de l'étude de Kaplan et Zingales. Après avoir contrôlé ces biais, les résultats obtenus soutiennent ceux de Fazzari *et al.* (1988). Selon Guariglia (2008), les études divergent entre elles parce que certaines utilisent des mesures de contraintes financières internes alors que les autres utilisent des mesures de contraintes de financements externes. Ainsi, les études aboutissant à des résultats conformes à ceux de Fazzari *et al.* (1988) utilisent des mesures de contraintes de financement qui sont plutôt externes comme la taille, l'âge de l'entreprise, le ratio de distribution des dividendes et les notations du risque des obligations. Les autres études supportant les résultats de Kaplan et Zingales (1997) s'appuient sur des indicateurs de contraintes de financement plutôt interne. Si les entreprises sont classées sur la base d'indicateurs de contraintes de financement interne, la sensibilité de l'investissement aux cash flows peut être positive ou négative. Si la classification est faite sur la base de contraintes de financement externe la relation de l'investissement aux cash flows est non-monotone, en forme de ''U'' (Guariglia, 2008). Pour

[2] Quatre entreprises : Coleco, Mohawk Data Sciences, Digital et Data General.

Hovakimian et Hovakimian (2009), les "indicateurs traditionnels" des contraintes de financement et l'indice de Kaplan et Zingales (1997) reflètent deux aspects distincts des contraintes financières. Alors que les "indicateurs traditionnels" (taille, ratio de distribution des dividendes, notations de risque des obligations, etc.) distinguent mieux les entreprises plus susceptibles de faire face à des contraintes de financement, l'indice de Kaplan et Zingales (1997) est plus apte à différencier les années de fortes contraintes de financement.

Cette divergence des résultats n'a pas freiné les recherches récentes étudiant la sensibilité des investissements aux cash flows. Ainsi, ces études ont analysé l'impact des contraintes de financement sur divers comportements d'investissement dont celui en recherches et développement (Bond *et al.*, 1999), celui dans les stocks (Carpenter *et al.*, 1994, 1998; Guariglia, 1999, 2000), l'exportation (Bellone *et al.*, 2008), celui dans l'emploi (Sharpe, 1994; Nickell et Nicolitas, 1999; Spaliara, 2009) et enfin l'investissement dans la croissance de l'entreprise (Carpenter et Peterson, 2002).

Étant donné l'importance croissante de la responsabilité sociale des entreprises (RSE), il convient de s'interroger sur l'impact des contraintes financières sur l'investissement que l'entreprise pourrait engager dans les actions sociales. De même, il est important d'examiner l'effet de la RSE sur les contraintes financières et par conséquent l'accès aux marchés des capitaux.

2. Relation entre la responsabilité sociale de l'entreprise et les contraintes de financement

Selon la définition de Carroll (1979), la responsabilité sociale de l'entreprise dépasse les seules exigences économiques et légales pour inclure l'ensemble des attentes d'ordre éthique et discrétionnaire de la société. Pour satisfaire ces exigences et répondre à ces attentes, les entreprises s'engagent de plus en plus dans diverses actions qui peuvent concerner, entre autres, les relations avec les employés, l'appui à la communauté, le respect des droits de l'homme et l'environnement. Étant donné que de telles actions mobilisent les ressources financières de l'entreprise, la pertinence économique d'un tel engagement a été largement débattue tant dans les milieux académiques que ceux d'affaires. En somme, les études

théoriques et empiriques ne s'entendent pas sur des conclusions claires quant à la relation entre la performance sociale de l'entreprise (PSE) et celle financière (PFE). Plusieurs explications ont été avancées pour comprendre l'hétérogénéité des résultats dont la multitude des mesures de PSE et de PFE utilisées. Dans le cadre de cette thèse nous utilisons différentes mesures de PSE, qui tiennent compte de plusieurs critiques soulevées dans la littérature, et nous explorons une nouvelle mesure de PFE qui représente la facilité de l'accès de l'entreprise au financement externe.

Dans le premier essai, nous évaluons l'impact de l'engagement social sur l'allègement des contraintes de financement. Dans le deuxième essai, nous examinons comment l'investissement dans les activités sociales, approximé par l'importance des actions sociales, est affcté par les contraintes de financement. Dans le troisième essai, enfin, nous étudions comment les contraintes de financement affectent la relation entre la valeur de l'entreprise et son engagement social. Dans ce qui suit nous décrivons brièvement ces trois essais.

2.1. Effets de l'engagement social sur les contraintes de financement

Plusieurs gouvernements à travers le monde ont adopté des lois et règlements pour amener les entreprises à divulguer l'information extra-financière concernant la RSE (Cheng *et al.*, 2011). Cette promulgation de lois et règlements conjuguée à la croissance rapide de l'investissement socialement responsable (ISR) sur les marchés financiers reflètent une importante tendance quant à l'intégration de l'information sur la RSE dans les décisions d'investissement. Une telle prise en compte d'information extra-financière soulève la question de l'effet de l'engagement social de l'entreprise sur son accès au financement externe. C'est cette question de recherche à laquelle s'intéresse le premier essai de cette thèse en proposant d'évaluer l'impact de l'importance des actions sociales de l'entreprise sur ses contraintes de financement.

Notre hypothèse de base stipule que l'engagement social de l'entreprise affecte son accès aux marchés financiers. Compte tenu de la littérature, nous avons au moins trois arguments en appui à notre hypothèse.

Premièrement, une entreprise s'engage dans les activités sociales entre autres pour gérer son risque (Bowman, 1980; Fombrun *et al.*, 2000; Husted, 2005), pour éviter de payer des amendes (Belkaoui, 1976; Spicer, 1978), et pour minimiser ses potentiels conflits avec la société et l'environnement (Heal, 2005). Par conséquent, l'implication sociale de l'entreprise peut servir à réduire son exposition au risque (Godfrey, 2005; El Ghoul *et al.*, 2011; McGuire *et al.*, 1988) et de là, faciliter son accès au financement externe (Waddock et Graves, 1997).

Deuxièmement, la RSE semble réduire à la fois les coûts d'agence et l'asymétrie d'information entre les gestionnaires et les bailleurs de capitaux. Signal de la qualité de gestion pour les investisseurs (Goss, 2008; Akpinar *et al.*, 2008), une bonne PSE baisse les coûts de contrôle et de surveillance de l'action ordinaire de l'entreprise et par conséquent réduit le coût du financement externe.

Troisièmement, la base des investisseurs des entreprises avec des problèmes sociaux est réduite par rapport à celles sans ces problèmes. La prime de risque exigée sur les titres de ces entreprises se trouve alors haussée, ce qui augmente le coût des fonds externes. Cet argument est basé sur le modèle de Merton (1987) ainsi que sur celui de Heinkel *et al.* (2001).

Pour distinguer les entreprises financièrement contraintes de celles qui ne le sont pas, nous avons utilisé trois mesures: les notations de risque des obligations (Hahn et Lee, 2009; Kashyap *et al.*,1994 et Whited, 1992), l'indice de Whited et Wu (Whited et Wu, 2006) et la taille de l'entreprise (Almeida *et al.*, 2007; Gilchrist et Himmelberg, 1995 et Erickson et Whited, 2000). Pour les mesures des actions sociales, nous avons distingué le score agrégé consistant en la différence entre les scores positifs (forces) et les scores négatifs (faiblesses) et nous avons utilisé séparément ces scores positifs et négatifs.

Compte tenu de nos arguments et des mesures retenues, nous anticipons que les actions sociales à caractère discrétionnaire, respectivement mesurées par le score agrégé et le score positif, sont sans effet ou réduisent (détériorent) l'accès au financement externe pour les entreprises non-contraintes (contraintes). De même, nous nous attendons à ce que les actions sociales à caractère non-discrétionnaire, mesurées par le score négatif, améliorent l'accès au financement externe pour les entreprises non-contraintes comme pour celles contraintes.

Notre modèle de base pour tester nos hypothèses est le modèle de Q de Tobin qui utilise la sensibilité de l'investissement aux cash flows pour évaluer l'importance de la contrainte de financement. Ce modèle est amendé pour tenir compte du niveau d'engagement social de l'entreprise et ce, en y incluant une variable dichotomique distinguant un niveau élevé d'engagement (variable égale à 1) par rapport à celui faible (variable égale à zéro). Notre intérêt est focalisé sur le terme d'interaction entre la variable dichotomique et celle représentant les cash flows. Ce terme permet de mesurer l'effet marginal d'avoir un niveau élevé d'actions sociales sur la contrainte de financement. Les tests sont conduits respectivement pour l'échantillon non différencié comme pour les sous-échantillons d'entreprises financièrement contraintes et celles non-contraintes.

2.2. L'investissement dans les activités sociales

L'objectif du deuxième essai de cette thèse est l'examen de l'effet des contraintes de financement sur l'investissement de l'entreprise dans les activités sociales[3]. Cet investissement ne cesse de s'accroitre pour faire face aux demandes et pressions grandissantes qui viennent à la fois des clients, employés, consommateurs, gouvernement, communauté, actionnaires, etc. Ainsi, un tel investissement peut concerner l'acquisition de nouveaux équipements respectueux de l'environnement, l'utilisation d'énergie propre, l'implantation de nouveaux procédés de travail permettant une meilleure prévention de problèmes de sécurité et de santé des employés, le développement de programmes de soutien à la communauté, etc. Les différentes parties prenantes de l'entreprise ne poussent pas seulement celle-ci à plus d'engagement social mais aussi à rapporter et à mesurer la performance d'un tel engagement. En témoignage de cette tendance nous citons la croissance rapide sur les marchés financiers aux États-Unis d'Amérique des investissements socialement responsables. En effet, selon le Social Investment Forum (2010), les actifs qui suivent les stratégies d'investissement socialement responsable ont connu une croissance de 380% entre 1995 et 2010, passant de $639 billions à $3.07 trillions. Entre 2007 et 2010, cette croissance

[3] Dans le cadre de cette thèse nous utilisons une définition large des «activités sociales», celle qui inclut à la fois les activités sociales, environnementales et de gouvernance.

a dépassé 13% alors qu'elle a été inférieure à 1% pour l'ensemble de l'univers d'investissement.

L'objectif visé par cet essai trouve aussi sa justification dans la littérature théorique de la responsabilité sociale de l'entreprise. Selon l'hypothèse des ressources disponibles, seules les entreprises performantes financièrement ont la liquidité nécessaire leur permettant d'engager des actions sociales (Preston et O'Bannon, 1997; Waddock et Graves, 1997). Plusieurs études empiriques supportent cette hypothèse (Orlitzky *et al.,* 2003; Allouche *et al.,* 2005; Margolis *et al.,* 2007). Pour notre part, l'évaluation de l'impact des contraintes de financement est aussi le test de l'effet de l'accès au financement externe sur l'engagement social de l'entreprise.

Pour répondre à notre question de recherche nous construisons nos variables sociales, nous classons les entreprises selon leurs contraintes de financement (contraintes versus non contraintes) et nous utilisons le modèle d'investissement, appelé aussi modèle de Q de Tobin, pour tester nos hypothèses. Nos mesures sociales proviennent de la base de données KLD portant sur les entreprises américaines. Nous formons sept variables : le score agrégé consistant en la différence entre les scores positifs (forces) et les scores négatifs (faiblesses), puis nous distinguons séparément les forces et les faiblesses. Enfin, nous désagrégeons selon les quatre mesures de Mattingly et Berman (2006) et qui sont les forces et les faiblesses à la fois des parties prenantes primaires et celles secondaires. Les désagrégations utilisées présentent quatre principaux avantages. Premièrement, on évite l'inconvénient d'une seule mesure totale qui pourrait masquer les hétérogénéités individuelles des différentes composantes. Deuxièmement, on distingue les forces et les faiblesses qui représentent deux différents construits et non-opposés (Mattingly et Berman, 2006). Troisièmement, selon Mattingly et Berman (2006), les forces et les faiblesses des parties prenantes primaires et celles secondaires constituent les quatre construits latents de la base de données KLD. Quatrièmement, la distinction des forces et des faiblesses permet en même temps le classement des actions sociales selon leur caractère discrétionnaire. En effet, alors qu'on peut voir les faiblesses comme étant le minimum d'engagement social à satisfaire (Bird *et al.,* 2007) et par conséquent représentant l'ensemble des actions non-discrétionnaires, on peut

voir aussi les forces comme un engagement au delà de ce minimum (Bird *et al.,* 2007) reflétant les actions discrétionnaires.

Pour le classement des entreprises en contraintes versus non contraintes financièrement et en l'absence de consensus sur la meilleure mesure à utiliser, nous suivons la littérature et choisissons trois différents indicateurs : les notations de risque des obligations (Hahn et Lee, 2009; Kashyap *et al.,*1994 et Whited, 1992), l'indice de Whited et Wu (Whited et Wu, 2006) et la taille de l'entreprise (Almeida *et al.*, 2007; Gilchrist et Himmelberg, 1995 et Erickson et Whited, 2000).

Nos principales variables ainsi définies nous permettent d'énoncer nos hypothèses. Principalement, nous anticipons que l'ensemble des actions sociales des entreprises contraintes soit affecté par leurs contraintes financières. En particulier, nous nous attendons à ce que les actions non-discrétionnaires soient plus sensibles aux disponibilités de cash flows que ne le sont les entreprises non contraintes. De même, nous anticipons que les actions sociales discrétionnaires soient moins sensibles à la disponibilité de la liquidité interne pour les entreprises contraintes, celles-ci canalisant les ressources limitées à leur disposition à des utilisations plus prioritaires.

Pour tester nos hypothèses nous utilisons le modèle d'investissement qui nous permet de capturer l'effet des cash flows disponibles sur la variable représentant les actions sociales et ce, tout en contrôlant pour les opportunités de croissance mesurées par le Q de Tobin. Nous avons amendé ce modèle pour tenir compte de la contrainte de financement et par-là nous permettre d'isoler l'effet marginal des cash flows sur l'engagement social pour une entreprise contrainte financièrement. Tel que suggéré par la littérature de la RSE, nous avons rajouté certaines variables pour contrôler pour les effets de la taille, du risque et de l'industrie.

2.3. Effets des contraintes de financement sur la relation entre la valeur de l'entreprise et ses actions sociales

La croissance et la profitabilité de l'entreprise dépendent de ses projets d'investissement créateurs de la valeur. Selon leur sévérité, les obstacles à la réalisation de ces projets auront différents effets sur la capacité de l'entreprise à atteindre une meilleure performance financière. Un important obstacle, et qui a été largement débattu dans la littérature de la finance corporative, est la contrainte au financement externe. Dans le troisième essai, nous tenons compte de cette contrainte à l'accès au financement externe pour évaluer l'impact de l'engagement social de l'entreprise sur la valeur marchande de celle-ci. Notre postulat de base est que l'implication sociale est mieux valorisée par le marché quand l'entreprise se trouve en situation de contraintes de financement.

Dans la littérature portant sur la RSE, on distingue trois principaux courants quant à l'effet de l'engagement social de l'entreprise sur la valeur de celle-ci.

Selon le premier courant, les activités sociales sont destructrices de valeur pour l'entreprise. En effet, pour Friedman (1970), la seule responsabilité de l'entreprise est de servir les intérêts des actionnaires et c'est au gouvernement qu'il revient de traiter les différentes questions sociales. Plusieurs études empiriques supportent ce courant théorique. Ainsi, Brammer *et al.* (2006) ont examiné la relation entre la PSE et la PFE pour les entreprises publiques au Royaume Uni. Leurs résultats montrent qu'une PSE élevée est associée avec de faibles rendements boursiers et que les titres d'entreprises ayant une faible PSE performent mieux que le marché.

Selon le deuxième courant théorique, les entreprises assument de plus larges responsabilités qui dépassent celles concernant les actionnaires pour inclure d'autres parties prenantes et la société dans son ensemble (Freeman, 1984). Plus l'entreprise est capable de répondre aux attentes de ces différentes parties prenantes plus elle augmente leur satisfaction. Ceci lui permettra d'en tirer des bénéfices et par la suite d'améliorer sa PFE. Parmi ces bénéfices pour l'entreprise on peut citer une amélioration de la réputation (Fombrun and Shanley, 1990; Fombrun, 2005; Freeman *et al.*, 2007), un meilleur accès aux ressources

(Cochran and Wood, 1984; Waddock and Graves, 1997), un marketing plus élaboré pour les produits et services (Moskowitz, 1972; Fombrun, 1996), et une attractivité élevée d'employés talentueux (Turban and Greening, 1996; Greening and Turban, 2000), de consommateurs (Hillman and Keim, 2001) et d'investisseurs socialement responsables (Kapstein, 2001).

Comme en littérature théorique portant sur le lien entre la PSE et la PFE, la littérature empirique ne s'entend pas sur une conclusion claire. Toutefois, une grande partie des études indiquent qu'une valeur élevée de l'entreprise est associée à une bonne performance sociale, et inversement une faible valeur est reliée à une performance sociale médiocre. Plusieurs méta-analyses confirment cette tendance entre autres celles de Margolis and Walsh (2003) et Orltzky et *al.* (2003).

Selon le troisième et le dernier courant théorique, la RSE offre à l'entreprise une sorte d'assurance en cas d'événements négatifs (Godfrey *et al.*, 2005; Godfrey *et al.,* 2009). Par conséquent, l'engagement social de l'entreprise est plutôt protecteur et non créateur de valeur pour. En appui empirique à ce dernier courant, Epstein et Schneitz (2002) constatent que les entreprises ayant une bonne réputation de responsabilité sociale, comme indiqué par leur inclusion dans l'indice KLD, ont subi moins de perte à la suite de l'échec des réunions de l'organisation mondiale du commerce à Seattle en 1999.

D'autres auteurs considèrent que les activités sociales peuvent affecter positivement la valeur de l'entreprise et tout particulièrement en cas d'avènement de situations négatives. Ainsi, Chen *et al.* (2010) ont montré que des besoins élevés en financement externe renforcent l'effet positif de la bonne qualité des pratiques de gouvernance sur la valeur marchande de l'entreprise. Comme les pratiques de gouvernance font partie des activités de la RSE, nous nous proposons dans cet essai d'étendre l'étude Chen *et al.* (2010) en explorant comment l'engagement social impacte sur la valeur de l'entreprise lorsque celle-ci a un accès limité au financement externe.

Pour ce faire, nous utilisons le Q de Tobin comme mesure de la valeur marchande de l'entreprise, nous construisons nos variables sociales et nous identifions les entreprises selon leurs contraintes de financement (contraintes versus non contraintes). Sept variables sociales ont été retenues: le score agrégé consistant en la différence entre les scores positifs

(forces) et les scores négatifs (faiblesses), les forces et les faiblesses et enfin les quatre mesures de Mattingly et Berman (2006) et qui sont les forces et les faiblesses à la fois des parties prenantes primaires et celles secondaires. Comme indicateurs de contraintes de financement, nous utilisons les quatre mesures suivantes : le ratio de distribution des dividendes, les notations de risque des obligations, l'indice de Whited et Wu (2006) et la taille de l'entreprise.

Principalement nos hypothèses visent à tester si tout effet de l'engagement social sur la valeur de l'entreprise est plus élevé pour les entreprises financièrement contraintes que pour les non contraintes. Ainsi, un effet négatif (positif) de l'implication sociale sur la valeur de l'entreprise serait moins (plus) prononcé en présence de contraintes de financement. Nos hypothèses tiennent compte du caractère discrétionnaire ou non des actions sociales. Le modèle utilisé pour les tests d'hypothèses, régresse le Q de Tobin sur les différentes mesures d'actions sociales tout en contrôlant pour le niveau des contraintes de financement. D'autres variables, rapportées dans la littérature comme affectant la valeur de l'entreprise, ont été incluses et sont: la profitabilité, le levier financier et l'appartenance à l'indice S&P 500.

Dans chacun des trois chapitres suivants nous étudions respectivement chacune des trois relations qu'on vient de présenter. Ensuite, la dernière partie est consacrée à la synthèse des résultats et à la conclusion.

CHAPITRE I

ARTICLE 1

DOES SOCIAL COMMITMENT ALLEVIATE CORPORATE FINANCIAL CONSTRAINTS?

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DOES SOCIAL COMMITMENT ALLEVIATE CORPORATE FINANCIAL CONSTRAINTS?

Abstract

We use a Q model framework with firm-year fixed effects to examine the differential effect of corporate social actions (CSA) scores on a firm's access to external financing for a sample of 17 362 U.S firm-year observations from 1991 to 2007. We find that high levels of discretionary CSA have a negative impact on access to external capital only for firms that are financially constrained, and that no "social conscience" reflected in higher social concerns scores has a negative effect on access to financial markets for both financially constrained and unconstrained firms. Our results are not driven by negative cash flows, and are robust when we re-estimate our Q model using two-stage least squares to control for possible endogeneity between Tobin's Q and the CSA scores.

Keywords: Corporate social actions, strengths, concerns, financial constraints, investment, cash flows.

JEL Classification: G32; M14.

1.1. Introduction

If an increasing number of investors and analysts incorporate social ratings into their investments decisions and recommendations (Sharfman *et al.*, 2008; Heinkel *et al.*, 2001), then corporate social actions (CSA) may affect a firm's access to external financing. The rapid growth in socially responsible investment (SRI) and the increasing interest and use of social ratings by money managers and investment vehicles are relevant in this regard. According to the Social Investment Forum (2010), professionally managed assets following SRI strategies in the USA are estimated at $3.07 trillion at the start of 2010. This is an increase of more than 380 percent from the $639 billion in 1995. The increase over the same period for the broader universe of assets under professional management is lower at 260 percent.[4] Also, the assets of investment vehicles (not including separate account vehicles) and the number of funds that incorporate environmental, social and governance (ESG) criteria increased by 182 and 90 percent, respectively, from 2007 to 2010.

This important growth in incorporating CSA information into investment decisions raises the following question: What is the effect of CSR engagement by a firm on its access to capital markets. To address this question, we examine whether such engagement impacts corporate financial constraints. Employing a dataset of 17 362 firm-year observations from 1991 to 2007, we investigate the effect of corporate social actions on the cash flow sensitivity of investment for the whole sample and for financially constrained and unconstrained firms separately. Since firms with higher financial constraints face higher required risk premia and costs of external financing, assessing the impact of CSA on corporate risk has important implications for a firm's cost of external financing and weighted average cost of capital.

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[4] While market indices (such as the S&P 500) declined and the broader universe of professionally managed assets increased by less than 1 percent over the period 2007 to 2010, SRI assets increased by more than 13 percent (Social Investment Forum, 2010).

Our paper makes various contributions. First, we contribute to the emerging literature that explores the role of financial markets as a channel through which CSR activities might affect corporate financial performance. This literature focuses on the cost of capital such as equity (Derwall and Verwijmeren, 2007; Chen et *al.* 2009; El Ghoul et *al.*, 2011 and Reverte, 2011), equity and debt (Sharfman and Fernando, 2008) and bank loans (Goss and Roberts, 2011). We extend this literature by linking access to capital, rather than just the cost of capital, to a firm's social commitment. To proxy the level of a firm's access to financial markets, we rely on corporate financial constraints, which reflect the cost, availability and conditions for procuring needed capital. Second, our study considers the differential effect of CSR strategies on financing constraints when social performance is differentiated between discretionary (CSA_STR) and non-discretionary (CSA_CON) social actions. Also, we account for the differential effect of CSR strategies depending on the level of a firm's financing constraints (constrained versus unconstrained). Third, we extend the financial constraints literature that examines the relationship between financial constraints and investment (Hennessy and Whited, 2007) by showing that corporate social commitment affects a firm's financial constraints.

Cumulatively, our findings show that when the sample is undifferentiated high levels of social activities have no effect on a firm's financing constraints. However, when this sample is divided between financially constrained and unconstrained firms, high levels of discretionary social actions have a negative impact on access to external capital only for financially constrained firms. The results also indicate that high non-discretionary social actions scores negatively affect a firm's access to financial markets for both financially constrained and unconstrained firms.

The remainder of this essay is organized as follows. Section 2 reviews the main literature on financial constraints, CSR and access to external financing. Model specification, data description and estimation methods are provided in Section 3. In section 4, we present and discuss our empirical results. We conclude in section 5.

1.2. Review of the literature

1.2.1. Financial constraints

According to Modigliani and Miller (1958), the investment behaviour of a firm and its financial decisions are independent in perfect capital markets. In the presence of capital market imperfections (e.g., asymmetric information and agency costs in Myers and Majluf, 1984, and Jensen and Meckling, 1976, respectively), firms might have limited access to external finance and external funds are more expensive than internal funds. In turn, this affects investment decisions. A number of market imperfections may result in financial constraints.[5]

A first stream of studies documents the effects of financing costs on corporate investment levels and attributes these effects to capital market imperfections (e.g., Fazzari *et al.,* 1988; Hoshi *et al.,* 1991; Bond and Meghir, 1994; Gilchrist and Himmelberg, 1995; Lamont, 1997; Hubbard, 1998 for an extensive review). A second stream of studies, starting with Kaplan and Zingales (1997), challenges the usefulness of investment-cash flow sensitivity as an indicator of financial constraints.[6]

While this debate on the relation between financial constraints and investment-cash flow sensitivities continues, a third set of studies tries to explain and reconcile the findings of the previous two streams. According to Guariglia (2008), the results of the investment-cash flow sensitivities depend on the choice of the proxy for financial constraints. Findings consistent with Fazzari *et al.* (1988) are obtained using proxies for external financial constraints such as firm size, age, dividend payout and bond ratings, and findings consistent with Kaplan and Zingales (1997) use proxies for internal financial constraints that reflect internally generated funds. According to Allayannis and Mozumdar (2004), the findings of Kaplan and Zingales (1997) and Cleary (1999) are driven by negative cash flows and influential observations.

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[5] According to Lamont *et al.* (2001), financial constraints refer to: "frictions that prevent the firm from funding all desired investments. This inability to fund investment might be due to credit constraints or inability to borrow, inability to issue equity, dependence on bank loans, or illiquidity of assets".

[6] Papers providing support to Kaplan and Zingales (1997) include Cleary (1999), Kadapakkam *et al.* (1998) and Kaplan and Zingales (2000).

1.2.2. Corporate social responsibility and access to financial markets

In this study, we explore the effect of a firm's social involvement on its access to financial markets. Based on the finance as well as on the strategic management literatures, a positive, negative or neutral relationship can be expected. Hereafter, we discuss these theoretical possibilities and related empirical studies.

1.2.2.1. Positive relationship: Risk mitigation view

According to this view, a firm's commitment to social activities reduces its risk and therefore improves its access to external capital. We provide two key arguments in support of this view; namely, perceived firm exposure to risk and the investor base.

1.2.2.2. Firm's exposure to risk

According to the stakeholder's theory, a firm's social involvement positively affects its financial performance. Firm's motivations to engage in CSR activities include: to manage risk (Bowman, 1980; Fombrun *et al.*, 2000; Husted, 2005), to avoid costly government imposed fines (Belkaoui, 1976; Spicer, 1978), and to minimise conflicts between firms, society and the environment (Heal, 2005). Therefore, CSR actions could reduce a firm's exposure to risk (Godfrey, 2005; El Ghoul *et al.,* 2011; McGuire *et al.*, 1988) and thereby facilitate its access to capital markets (Waddock and Graves, 1997).

The empirical evidence for this theoretical argument includes Spicer (1978) who finds that companies with better pollution control records tend to have lower total and systematic risks, and Feldman *et al.* (1997) who find that investors perceive firms with higher environmental performance as less risky. Karpoff *et al.* (2005) find that the size of the stock price reaction to environmental violations is related to regulatory and legal penalties. In a meta-analytic literature review, Orlitzky and Benjamin (2001) provide support for an inverse relation between CSR activities and business risk.

1.2.2.3. Investor base

Since most investors do not hold the market portfolio, the investor base differs across stocks. Merton (1987) derives a theoretical model where investors invest only in stocks they are informed about. As a result, stocks of firms with smaller shareholder bases and therefore lower risk-sharing opportunities should yield higher returns. A similar model by Heinkel *et al.* (2001) predicts that investors demand a higher expected return for holding more shares of polluting firms than they would hold in a market free of boycotts from so-called green investors.

Hong and Kacperczyk (2009) provide empirical evidence that socially controversial firms have smaller shareholder bases (i.e., limited risk sharing opportunities). They find that the stocks of "sin" companies are more cheaply priced because they are disliked by an important set of socially norm-constrained institutional investors.

The effect, if any, of CSR activities on a firm's access to financial markets may materialize in the cost and availability of external capital and or in the imposed conditions to raise equity or to have debt. Different studies examine the relationship between a firm's CSR and its cost of capital using various CSR and cost of capital measures.

Derwall and Verwijmeren (2007) report a negative effect of environmental, governance, and product attributes on the cost of equity capital. Comparable results are found by El Ghoul *et al.* (2011) in that employee relations, environmental policies and products strategies reduce a firm's cost of equity while participation in tobacco and nuclear power increases it. Chen *et al.* (2009) and Reverte (2011) focus respectively on governance and CSR disclosure and link them to the cost of equity and find a negative association.

Sharfman and Fernando (2008) investigate the effect of environmental risk management on both costs of equity and debt. Since better risk management is negatively associated with a firm's cost of capital and positively with leverage, they conclude that more responsible firms enjoy easier access to debt capital. Finally, Goss and Roberts (2011) focus on how a firm's bank loans are affected by corporate social spending. Their results show that firms with social

concerns pay between 7 and 18 basis points more than firms that are more socially responsible.

2.2.2. Negative relationship: Overinvestment and managerial opportunism

The overinvestment and managerial opportunism hypotheses rely on agency theory. According to the overinvestment hypothesis, top management tends to overinvest in CSR activities to build their own personal reputations as good citizens (Barnea and Rubin, 2010). Based on the managerial opportunism view, opportunistic managers act to reduce corporate social investments in good times so as to increase their own personal profits and increase them in bad times in order to justify disappointing profitability (Preston and O'Bannon, 1997). In the context of these two hypotheses, CSR spending translates into higher costs, which negatively affect the competitiveness and profitability of the firm (Friedman, 1970). Therefore, higher corporate social commitment is expected to negatively affect a firm's access to external financing.

Sharfman and Fernando (2008) find a negative impact of environmental risk management on a firm's cost of debt. Similarly, Goss and Roberts (2011) report that that low-quality borrowers that engage in discretionary CSR activities face higher loan spreads and shorter maturities.

2.2.3. Neutral relationship

According to this view, no link exists between CSA and a firm's access to external capital. McWilliams and Siegel (2001) propose a model of supply and demand for social responsibility that predicts a neutral link between CSR and firm financial performance given market equilibrium. More responsible firms bear higher costs but enjoy higher revenues, while less responsible firms incur both lower costs and revenues.

Various empirical studies support this view. Using a CAPM framework, Hamilton *et al.* (1993) find only two significant alphas out of 32 (one positive and one negative) when investigating the relation between the returns of socially responsible portfolios and conventional portfolios. They conclude that there are no significant effects of social

responsibility on expected stock returns. Also, McWilliams and Siegel (2000) estimate the impact of CSR on corporate financial performance (CFP) controlling for R&D expenditures and find an insignificant link between the two.

Thus, based on theoretical arguments and empirical findings, we can expect that higher corporate social involvement has an indeterminate effect on a firm's access to financial markets that can only be determined from further empirical study.

1.3. Data, variables, hypotheses and methodology

1.3.1. Data

We use the Kinder, Lydenberg, Domini & Co. (KLD) Socrates database to obtain information about corporate social actions. For firm financial and market data, we use the COMPUSTAT, CRSP and IBES databases. The final sample consists of 17,362 firm-year observations for which the relevant social, financial and market data are available from the four databases for the period 1991-2007. Our sample excludes financial (SIC codes 6000-6999) and utilities (SIC codes 4900-4999) firms, as is customary practice in the literature.

1.3.2. Financial constraints

To assess the effects of CSA on corporate financial constraints, we need to identify financially constrained firms. Given the lack of consensus on how this is best done, we use three different classifiers: bond rating, Whited and Wu index and size. For each of these indicators, a dummy variable is created with a value of zero if the firm is financially unconstrained and one if it is constrained.

Whited (1992) and Kashyap *et al.* (1994) use the existence of a bond rating as an empirical measure of whether firms are financially constrained. Following Hahn and Lee (2009), we classify those firms with positive debt but without a S&P's bond rating in a given

year as financially constrained. Financially unconstrained firms are those with positive debt and an S&P bond rating in a given year during the sample period.[7]

The Whited and Wu index (WW) is computed using the empirical equation (13) in Whited and Wu (2006). Specifically, for each sampled firm *i* at time *t*, WW is given by:

WW Index= −0.091CF − 0.062DIVPOS + 0.021TLTD − 0.044LNTA +0.102ISG − 0.035SG

where

CF is the ratio of cash and short term investments to total assets;

DIVPOS is a binary indicator equal to 1 if the firm pays cash dividends and 0 otherwise;

TLTD is the ratio of the long-term debt to total assets;

LNTA is the natural log of total assets;

ISG is the sales growth of the firm's industry based on the 48 Fama and French industries; and SG is the firm's sales growth.

Firms are sorted yearly in ascending order of the WW index levels. Firms with WW index scores higher (less) or equal to the (30^{th}) 70^{th} percentile are classified as financially (un)constrained.

We follow Almeida *et al.* (2007), Gilchrist and Himmelberg (1995) and Erickson and Whited (2000), among others, in using firm size as a measure of being financially constrained. In every year over the 1991–2007 period, we rank firms based on the logarithm of their total assets. We assign firms to the financially constrained (unconstrained) group if they are in the bottom (top) three deciles of the annual asset size distribution.

1.3.3. Corporate social actions (CSA)

The corporate social measures used herein come from the KLD's Socrates database which provides several ratings of a firms' environmental, social, and governance performance. KLD is widely and commonly employed in empirical research concerned with corporate social responsibility (Rehbein *et al.,* 2004). It gives social ratings data for more

[7] A sensitivity test of this metric is given in the robustness checks.

than 3 000 companies over a relatively long period of time. KLD started in 1991 with all companies belonging to the Domini 400 Social Index and S&P 500 Index. In 2001 and 2003, it enlarged its coverage to include respectively all companies in the Russell 1000 Index and Russell 3000 Index. The final database is an unbalanced panel.

Each year and for each firm, KLD analysts produce ratings on strengths and concerns for seven dimensions of social responsibility (community, diversity, employee relations, environment, products, human rights, and governance). A score of "1" is assigned to the firm when it demonstrates strength (has concerns) on a social dimension and zero otherwise. KLD also has six exclusionary screens (alcohol, gambling, military, nuclear power, firearm and tobacco) that we do not consider for our study since they have only concern ratings and no strength ratings and since they reflect firm membership in specific industrial sectors.

Given the lack of consensus in the CSR literature on how to weight the different dimensions to produce reliable social measures, we use three aggregated measures: total aggregated (CSA_TOT), total strengths (CSA_STR) and total concerns (CSA_CON). For each company and each year we calculate the company's score CSA_TOT as the difference between the total strengths (CSA_STR) and the total concerns (CSA_CON). We rank firms annually based on their CSA scores, and then assign them to the high (low) CSA group if they are in the top (bottom) three deciles of the annual score distribution. Hence, a dummy variable is created with a value of zero (one) if the firm has a low (high) CSA score. For the purpose of this study, we classify total aggregated CSA_TOT as being discretionary rather than a non-discretionary CSA.[8]

We also use CSA_STR and CSA_CON for three main reasons. First, the aggregate measure might hide important heterogeneity that is masked by aggregation. Second, KLD strengths and concerns are not two opposite sides for the same social dimension since they do not co-vary in opposing directions (Mattingly and Berman, 2006). Third, using these two constructs enables us to compare the effect of discretionary versus non-discretionary corporate social actions. Whereas CSA concerns can be seen as minimum community and

[8] According to Carroll (1979), CSR is partially discretionary. In his model, he differentiates between four types of corporate social responsibilities: economic, legal, ethical, and discretionary.

legal requirements that need to be met by firms (non-discretionary actions), CSA strengths can be seen as CSA beyond this minimum (Bird *et al.*, 2007) and thus as voluntary and discretionary actions.

1.3.4. Hypotheses

Based on our earlier review of the literature, the impact of corporate social commitment on a firm's access to capital markets is indeterminate. We argue that the distinction between discretionary and non-discretionary CSA and between financially constrained and unconstrained firms will help in explaining the different possibilities. In particular, we expect capital markets to react differently towards financially constrained and unconstrained firms when assessing discretionary but not non-discretionary CSA.

1.3.4.1. Discretionary CSA and a firm's access to capital

From an investor point of view and due to liquidity shortage, financially constrained firms are expected to use their available resources to strengthen their financial position and for more promising investments. Hence, any involvement in discretionary CSA could be seen as an overinvestment and or managerial opportunism behavior. Therefore, we expect that discretionary CSA should negatively affect a firm's access to external capital. Thus, our first hypothesis is:

Hypothesis 1: For financially constrained firms, high discretionary CSA (CSA_TOT and CSA_STR) scores increase the sensitivity of investment to cash flows.

For financially unconstrained firms, discretionary CSA could also be seen by investors as overinvestment. If this view holds, we expect that the negative link will be less pronounced for financially unconstrained than constrained firms. Nonetheless, since unconstrained firms could benefit from these discretionary CSA through risk mitigation, it is more likely that they will invest in discretionary CSA as long as the benefits exceed or are equal to the costs incurred. Thus, we expect that the relationship between discretionary CSA and access to financial market is positive or non-existent. Thus, our second hypothesis is:

Hypothesis 2: For financially unconstrained firms, high discretionary CSA (CSA_TOT and CSA_STR) scores increase or have no effect on the sensitivity of investment to cash flows.

1.3.4.2. Non-discretionary CSA and firm's access to capital

Since social concerns increase a firm's risk, their link to corporate financial constraints is expected to be negative. Also, since corporate social actions targeting these concerns are non-discretionary for all firms, the market should not distinguish between constrained and unconstrained firms when assessing them. Therefore, our third hypothesis is:

Hypothesis 3: High non-discretionary CSA (CSA_CON) scores increase the sensitivity of investment to cash flows for both financially constrained and unconstrained firms.

1.3.5. Model specification

Since the severity of a financial constraint is not observable, the sensitivity of investment to internal funds is used in the literature to identify the presence and the severity of such a constraint. After the influential paper of Fazzari *et al.* (1988), an approach based on the Q theory of investment suggested by Tobin (1969) has been widely adopted. The baseline Q model equation augmented with the CSA measures is given by:

$$(I_{i,t}/K_{i,t-1}) = \beta_0 + \beta_1 Q_{i,t-1} + \beta_2 (CF_{i,t}/K_{i,t-1}) + \beta_3 CSA^j_{i,t} + \beta_4 (CF_{i,t}/K_{i,t-1}) * CSA^j_{i,t} + \sum_i Firm_i + \sum_t Year_t + \varepsilon_{i,t} \quad (1)$$

Where $\left(I_{i,t}/K_{i,t-1}\right)$ is the ratio of capital expenditures to beginning of period capital stock; and Q is the ratio of the market value of assets to the book value of assets winsorized at the 1st and 99th percentiles. The market value of assets is the sum of the book value of assets and the market value of common stock less the book value of common stock and deferred taxes. $(CF_{i,t}/K_{i,t-1})$ is the ratio of cash flows to beginning-of-period capital stock. Cash flows are computed as earnings before interest, taxes and depreciation minus interest

expense, cash taxes and changes in net working capital from year t-1 to year t. Firms and Years are dummies to control for firm and year fixed effects, respectively. $CSA_{i,t}^{j}$ is the j-th dummy variable for one of the following CSA measures: aggregate CSA score (CSA_TOT), CSA total strengths (CSA_STR) and CSA total concerns (CSA_CON).

To identify the role of CSA in alleviating financing constraints, our interest centers on the coefficient β_4 of the interaction term between the cash flow and CSA variables. If β_4 is significant and negative (positive), high CSA_TOT and CSA_STR (CSA_CON) scores reduce investment sensitivity to cash flows and therefore relax the firms' financing constraints.

1.4. Empirical findings

1.4.1. Descriptive statistics

Table 1.1 reports the correlations between our main variables. The three financial constraints (bond rating, Whited and Wu index and size) are significantly correlated at the 1% level and their highest correlation coefficient of 0.714 indicates that each measure captures some unique information. High score of the aggregated social actions CSA_TOT (total strengths CSA_STR and total concerns CSA_CON) is (are) positively (negatively) and significantly correlated with the three financing constraints proxies. These results suggest a possible negative (positive) effect of CSA_TOT (CSA_STR and CSA_CON) on a firm's access to external financing.

Table 1.1: Correlations between the main variables

	BR	WW index	Size	CSA_TOT	CSA_STR	CSA_CON	Investment	Q
BR	1.000							
WW index	0.378***	1.000						
Size	0.714***	0.643***	1.000					
CSA_TOT	0.088***	0.075***	0.160***	1.000				
CSA_STR	-0.163***	-0.213***	-0.237***	0.826***	1.000			
CSA_CON	-0.357***	-0.366***	-0.529***	-0.670***	0.170***	1.000		
Investment	0.267***	0.167***	0.287***	0.040***	-0.059***	-0.168***	1.000	
Q	0.242***	0.187***	0.280***	0.156***	0.076***	-0.129***	0.359***	1.000
Cash Flow	-0.034***	-0.090***	-0.113***	0.043***	0.061***	0.017*	-0.009	-0.027***

Note: This table provides correlation coefficients of key variables for our sample of 17,362 firm-year observations (1991-2007). CSA stands for Corporate Social Actions. With respect to bond ratings (BR), we consider firms with positive debt but without a Standard & Poor's (S&P) bond rating in a given year as financially constrained. Financially unconstrained firms are those with positive debt and a S&P bond rating in a given year during the sample period. WW Index (Whited and Wu index): Firms are sorted yearly in ascending order of index levels. Then firms with levels higher (lower) or equal to the (30^{th}) 70^{th} percentile are classified as financially (un)constrained. Size: In every year we rank firms based on the logarithm of their total assets and assign to the financially constrained (unconstrained) group those firms in the bottom (top) three deciles of the annual asset size distribution. CSA_TOT: the total aggregated CSA is the sum of strengths minus sum of concerns; CSA_STR: the aggregated CSA strengths (sum of strengths); CSA_CON: the aggregated CSA concerns (sum of concerns). In every year we rank firms based on their CSA scores and assign those firms in the bottom (top) three deciles of the annual score distribution to the high (low) CSA group. Hence, a dummy variable is created with a value of zero (one) if the firm has a low (high) CSA score. Investment: is the ratio of capital expenditures to beginning of period capital stock. Q is Tobin's Q computed as the ratio of the market value of assets to the book value of assets. The market value of assets is the sum of the book value of assets and the market value of common stock less the book value of common stock and deferred taxes. Q has been winsorized at the 1st and 99th percentiles. Cash Flow: is the ratio of cash flow (computed as earnings before interest, taxes and depreciation minus interest expense, cash taxes and change in net working capital from year t-1 to year t) to the beginning of period capital stock. ***, **, * indicate significance at the 1%, 5% and 10% level, respectively.

Panel A of Table 1.2 reports the means and their comparisons for our main variables for the constrained and unconstrained samples. Using the aggregated social measure CSA_TOT, the results of mean difference tests indicate that constrained firms present significantly and consistently higher scores than unconstrained firms across the three proxies of financing constraints. Social strengths (CSA_STR) and concerns (CSA_CON) scores are significantly higher for financially unconstrained firms compared to their constrained counterparts. These results are similar to our earlier findings reported in Table 1.1.

Table 1.2: Means of the key variables and their differences under three financial constraints proxies

Panel A										
Variables	Whole sample	BR			WW index			Size		
		Const	Uncon	Mean difference	Const	Uncon	Mean difference	Const	Uncon	Mean difference
BR	0.496	1	0		0.642	0.260	-0.382***	0.887	0.166	-0.721***
WW index	0.571	0.766	0.391	-0.375***	1	0		0.944	0.289	-0.654***
Size	0.429	0.801	0.093	-0.708***	0.682	0.049	-0.633***	1	0	
CSA_TOT	0.395	0.443	0.357	-0.086***	0.442	0.368	-0.074***	0.512	0.349	-0.163***
CSA_STR	0.385	0.299	0.459	0.159***	0.324	0.536	0.211***	0.300	0.542	0.241***
CSA_CON	0.387	0.208	0.556	0.348***	0.263	0.627	0.365***	0.136	0.667	0.532***

Panel B										
Variables	Whole sample	CSA_TOT			CSA_STR			CSA_CON		
		High	Low	Mean difference	High	Low	Mean difference	High	Low	Mean difference
Investment	0.320	0.315	0.291	-0.024***	0.293	0.331	0.038***	0.243	0.351	0.107***
Q	2.223	2.463	2.013	-0.450***	2.336	2.114	-0.221***	1.977	2.357	0.380***
Cash Flow	0.37	0.536	0.345	-0.190***	0.551	0.262	-0.290***	0.401	0.315	-0.085**

Note: This table reports means of key variables and their differences for the total sample of 17,362 firm-year observations (1991-2007) and for the constrained and unconstrained subsamples. The variables are as defined in table I. ***, **, * indicate significance at the 1%, 5% and 10% level, respectively.

The counter intuitive findings for CSA_CON in Table 1.1 and in panel A of Table 1.2 may be explained by the fact that firms that tend to adopt positive social actions are often those firms that tend also to have social concerns (Mattingly and Berman, 2006). The significant positive correlation of CSA_CON with CSA_STR (0.17) is supportive of this argument.

Since our interest herein is on the sensitivity of investment to cash flow controlling for future opportunities, we perform means and mean difference tests for investment, cash flow and Q variables for high and low CSA samples. The results reported in panel B of Table 1.2 show that the high aggregated CSA_TOT sample has a significantly higher mean than the low CSA_TOT sample for the investment, cash flow and Q variables. Higher scores of CSA_STR are significantly associated with smaller levels of investment compared to the sample with lower scores. Firms with lower CSA_CON scores have bigger investments than higher CSA firms. Firms with higher (lower) CSA_STR and CSA_CON, show higher Q than lower (higher) CSA firms. In addition, all cash flows of firms with higher CSA_STR are larger than those of lower CSA scores firms. Overall, the results reported in panel B indicate patterns for investment, cash flows and Q across high and low CSA firms. These patterns might be indicative of a possible effect of CSA on the sensitivity of investment to cash flow variations, and provide the motivation for conducting a multivariate analysis which is more appropriate to test our hypotheses.

1.4.2. Regression results

The results of firm and year fixed effects estimations of our equation (1), which investigate the impact of aggregated CSA_TOT on a firm's access to external financing, are reported in Table 1.3. The first estimation reported in column 2 is performed for the whole

sample including financially constrained and unconstrained firms. The results of this estimation show insignificant sensitivity of investment to cash flows for firms with high CSA_TOT scores and therefore corporate social commitment has no impact on a firm's access to capital markets. However, investor reaction to such involvement might be different depending on the firm financing constraints. If the investor considers corporate investment in such commitments as being unnecessary, then this should be especially true for firms with liquidity shortages. Therefore, it is important to investigate any potential difference between financially constrained and unconstrained firms. In the remaining columns of Table 1.3 we report the estimation results respectively for constrained and unconstrained firms using the three proxies of financing constraints. First, the results for the constrained subsamples indicate that high CSA_TOT scores significantly increase the sensitivity of corporate investment to cash flow variations with two out of the three proxies of financing constraints used. So, for these firms social commitment reduces their access to external capital in support of our first hypothesis. Second, and as expected for our second hypothesis, the findings for the unconstrained firms show a insignificant impact of high CSA_TOT scores on investment-cash flow sensitivities.

Table 1.3: Investment-cash flow sensitivity and CSA_TOT for samples including negative cash flows observations

Variables	Whole sample	Constrained			Unconstrained		
		BR	WW index	Size	BR	WW index	Size
Cash flow	0.0159	-0.0020	-0.0024	-0.0175	0.0455***	0.0385**	0.0427***
	(1.441)	(-0.146)	(-0.133)	(-1.046)	(3.482)	(2.444)	(3.165)
Lagged *Q*	0.0560***	0.0623***	0.0642***	0.0840***	0.0463***	0.0454***	0.0498***
	(9.401)	(6.035)	(6.282)	(5.613)	(7.713)	(6.382)	(6.168)
CSA_TOT	-0.0050	-0.0010	-0.0087	-0.0157	0.0084	0.0028	0.0138
	(-0.507)	(-0.036)	(-0.459)	(-0.507)	(1.015)	(0.209)	(1.215)
CSA_TOT_Cash flow	0.0106	0.0279*	0.0327*	0.0282	-0.0173	-0.0023	-0.0236
	(0.901)	(1.704)	(1.730)	(1.420)	(-1.367)	(-0.106)	(-1.419)
Constant	0.2080***	0.2718***	0.2148***	0.1399*	0.1291***	0.1898***	0.1421***
	(14.488)	(7.279)	(7.814)	(1.890)	(7.314)	(10.412)	(6.922)
Firm/year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	8 890	3 558	3 141	1 922	5 332	3 267	4 516
R-squared	0.111	0.089	0.121	0.128	0.202	0.169	0.186

Note: This table reports regression coefficients from the firm and year fixed effects regressions for the sample period 1991 to 2007 using our baseline model (equation 1). All variables are defined in the note to Table 1.1. Robust and clustered (by firm) t-statistics are reported in parentheses. ***, **, * indicates significance at the 1%, 5% and 10% level, respectively.

Overall, this table reveals that corporate social actions have no effect on a firm's access to external financing using the whole sample. Nevertheless, when we split our sample into financially constrained and unconstrained firms, we find that high CSA_TOT scores reduce a firm's access to external capital for financially constrained firms, while no effect is captured for financially unconstrained firms.

To further assess any potential impact of CSR activities on financing constraints, we now employ now two disaggregated CSA measures (CSA_STR and CSA_CON) in our equation (1) instead of using the total aggregate score that might hide heterogeneity. Firm and year fixed effects regressions are performed and the results are provided in Table 1.4. The results of the estimation performed on the whole sample are given in column 2. Only high CSA_STR is found to significantly and positively affect investment-cash flow sensitivity. The same estimation is repeated separately for the financially constrained and unconstrained subsamples. Financially constrained firms with high CSA_STR scores consistently exhibit significantly higher investment-cash flow sensitivity in comparison to those with low CSA_STR scores. For unconstrained firms and for all the three financing constraint proxies, the results are insignificant. The findings indicate that all coefficients of the interaction term for the different model specifications and samples tested are insignificant when we use the CSA_CON scores.

Table 1.4: Investment-cash flow sensitivity and CSA_STR and CSA_CON for samples including negative cash flows observations

Variables	Whole sample	Constrained			Unconstrained		
		BR	WW index	Size	BR	WW index	Size
Cash flow	-0.0002	-0.0039	0.0119	-0.0224	0.0014	0.0158	0.0072
	(-0.027)	(-0.288)	(0.973)	(-1.594)	(0.195)	(0.695)	(0.461)
Lagged *Q*	0.0488***	0.0511***	0.0494***	0.0451***	0.0431***	0.0482***	0.0493***
	(7.789)	(4.318)	(5.005)	(3.186)	(6.678)	(4.787)	(5.459)
CSA_STR	-0.0155	-0.0340	-0.0114	0.0034	0.0057	-0.0035	-0.0009
	(-1.398)	(-1.185)	(-0.690)	(0.123)	(0.555)	(-0.243)	(-0.073)
CSA_CON	-0.0152	-0.0062	0.0207	0.0128	-0.0208**	-0.0194	-0.0220*
	(-1.291)	(-0.191)	(0.813)	(0.390)	(-2.051)	(-1.236)	(-1.845)
CSA_STR*Cash flow	0.0419***	0.0620***	0.0496**	0.0700***	0.0114	0.0164	0.0086
	(2.866)	(2.958)	(1.975)	(2.586)	(0.605)	(0.632)	(0.409)
CSA_CON*Cash flow	0.0093	0.0154	-0.0468	-0.0097	0.0268	0.0147	0.0319
	(0.551)	(0.602)	(-1.419)	(-0.238)	(1.399)	(0.607)	(1.334)
Constant	0.1735***	0.2781***	0.1284***	0.1809**	0.1319***	0.1798***	0.1515***
	(10.757)	(6.914)	(4.018)	(2.535)	(8.868)	(6.144)	(6.027)
Firm/year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	7 359	2 985	2 657	1 645	4 374	2 604	3 574
R-squared	0.107	0.094	0.126	0.092	0.160	0.155	0.181

Note: This table reports regression coefficients from the firm and year fixed effects regressions for the sample period 1991 to 2007 using our baseline model (equation 1). All variables are defined in the note to Table 1.1. Robust and clustered (by firm) t-statistics are reported in parentheses. ***, **, * indicates significance at the 1%, 5% and 10% level, respectively.

The results reported in Table 1.4 are supportive of our first and second hypotheses. They show that higher scores of discretionary CSR investments as reflected in CSA_STR, negatively impact a firm's access to external financing for the undifferentiated sample as well as for all the constrained subsamples. Nevertheless, such scores (and thereby corporate investments for unconstrained firms) have no effect on firm financial constraints. On the other hand, the results also indicate that capital market seems to be indifferent to non-discretionary CSR investments (CSA_CON) for all samples.

In summary, the results of our firm and year fixed effects regressions indicate that for the undifferentiated sample (including constrained and unconstrained firms), high CSA_TOT scores have no impact on the investment-cash flow sensitivity. However, the disaggregation of this social measure into CSA_STR and CSA_CON show that only the former has a negative effect on a firm's access to financial markets. The split of our sample into financially constrained and unconstrained firms reveals different reactions to discretionary CSA. For the financially constrained subsamples, the findings show a significant and positive impact of high CSA_TOT and CSA_STR scores on the sensitivity of investment to cash flows. For financially unconstrained firms, high scores of CSA_TOT and CSA_STR have no effect on a firm's access to capital markets. Finally, the results indicate a neutral reaction of capital markets to non-discretionary CSR investment (CSA_CON) for all samples. While the former results are supportive of our predictions in the first and second hypotheses, the latter results reject our third hypothesis. However, as we find later when we account for endogeneity, the reaction of capital markets to non-discretionary CSR investment (CSA_CON) becomes positive as predicted by our third hypothesis.

Although the fixed effects estimations we performed in this section succeed in controlling individual and time unobservable characteristics and in overcoming the omitted variables problems, their inferential robustness is tested further in the next section.

1.5. Tests of robustness

In this section we conduct various tests to examine the robustness of our earlier findings. First, we control for the endogeneity of Tobin's Q using two-stage least squares. Second, we

check if our results are driven by negative cash flows observations. Third, we control for a possible simultaneous relationship between a firm's social commitment and its financing constraints. Fourth, we run a sensitivity test of bond rating as a financial constraint proxy using another specification.

1.5.1. *Q* Model using two-stage least squares (2SLS)

Despite its popularity, the findings from the Q approach will not be robust if positive investment-cash flow sensitivity results from a lack of proper controls for unobserved investment opportunities (Hubbard, 1998). To address this potential concern, we re-estimate our models using two-stage least squares. In the first stage, we predict Tobin's Q using a set of instruments including median forecasts of financial analysts from IBES of the two-year-ahead earnings scaled by lagged total assets (Almeida *et al.*, 2004; 2007). The other instruments are lags of investment, cash flow, their interaction and the CSA variables. In the second stage, we use the predicted values of Tobin's Q to evaluate the sensitivity of corporate investment to cash flow. All these estimations control for firm and year fixed effects and only the results of the second stage estimation are reported.[9]

Table 1.5 reports the 2SLS regression results for our baseline model for the whole sample (column 2) and for the financially constrained and unconstrained subsamples. High CSA_TOT scores have no effect on the sensitivity of investment to cash flow for the whole sample. For the constrained groups, the findings show a significant and positive impact of high CSA_TOT scores on the investment-cash flow sensitivity, whereas for financially unconstrained firms, no effect is detected. These results are qualitatively the same as those obtained earlier using firm and year fixed effects regressions.

[9] We use Stata's xtivreg2 command (Schaffer, 2010) which implements 2SLS / IV estimation of the fixed-effects and first-differences panel data models with possibly endogenous regressors.

Table 1.5: Investment-cash flow sensitivity and CSA_TOT for samples including negative cash flows observations: 2SLS estimations with endogenous Q

Variables	Whole sample	Constrained			Unconstrained		
		BR	WW index	Size	BR	WW index	Size
Cash flow	0.0171	-0.0016	-0.0215	-0.0481***	0.0455***	0.0356*	0.0388***
	(0.894)	(-0.093)	(-0.758)	(-3.151)	(2.583)	(1.677)	(2.704)
Lagged Q	0.0660***	0.0314	0.1417	0.1545**	0.0747***	0.0628***	0.0861***
	(5.245)	(1.379)	(0.821)	(2.557)	(6.366)	(3.034)	(4.913)
CSA_TOT	0.0027	-0.0252	-0.0055	-0.0353	0.0159	0.0059	0.0171
	(0.189)	(-0.612)	(-0.134)	(-0.630)	(1.388)	(0.381)	(1.120)
CSA_TOT_Cash flow	0.0032	0.0430*	0.0500*	0.0729**	-0.0233	0.0002	-0.0259
	(0.150)	(1.942)	(1.773)	(2.037)	(-1.427)	(0.009)	(-0.984)
Firm and year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4 910	2 131	1 333	758	3 476	1 986	3 178
P-value of Hansen test	0.7559	0.4468	0.4219	0.1214	0.7429	0.6029	0.9623

Note: This table reports coefficients from the firm and year fixed effects regressions using two stage least square estimations for the sample period 1991 to 2007 using our baseline model (equation 1). We employ IBES median financial analysts' forecasts of the two-year-ahead earnings scaled by lagged total assets as instrument for Q. The set of instruments also includes lags of investment, cash flow, CSA variables and the interactions. All variables are defined in the note to Table 1.1. Robust and clustered (by firm) t-statistics are reported in parentheses. ***, **, * indicates significance at the 1%, 5% and 10% level, respectively.

The 2SLS regression results for our Q model testing for the effect of high levels of CSA_STR and CSA_CON are given in Table 1.6. The results indicate that high CSA_STR scores significantly and positively impact the investment-cash flow sensitivity for the whole sample and the financially constrained subsamples while they have no effect for the unconstrained firms. The findings also show that high levels of CSA_CON do not affect the investment-cash flow sensitivity for the undifferentiated sample and for all the differentiated subsamples. These results are supportive of our earlier conclusions drawn from Table 1.4.

Table 1.6: Investment-cash flow sensitivity and CSA_STR and CSA_CON for samples including negative cash flows observations: 2SLS estimations with endogenous *Q*

Variables	Whole sample	Constrained			Unconstrained		
		BR	WW index	Size	BR	WW index	*Size*
Cash flow	0.0003	-0.0088	0.0149	-0.0040	0.0030	0.0481***	0.0118
	(0.032)	(-0.380)	(1.089)	(-0.131)	(0.405)	(2.633)	(0.524)
Lagged *Q*	0.0694***	0.0713**	0.0700***	0.1128**	0.0710***	0.0590***	0.0822***
	(6.064)	(2.319)	(3.725)	(2.266)	(6.065)	(3.770)	(5.255)
CSA_STR	-0.0069	-0.0479*	-0.0003	-0.0382	0.0059	0.0206	0.0110
	(-0.633)	(-1.792)	(-0.018)	(-1.280)	(0.574)	(1.627)	(0.844)
CSA_CON	-0.0063	0.0264	0.0026	0.0524	-0.0183*	-0.0104	-0.0179
	(-0.491)	(0.697)	(0.132)	(1.262)	(-1.850)	(-0.777)	(-1.333)
CSA_STR*Cash flow	0.0318*	0.0690**	0.0582**	0.1055**	0.0056	-0.0354	-0.0107
	(1.863)	(2.343)	(1.960)	(1.998)	(0.301)	(-1.434)	(-0.448)
CSA_CON*Cash flow	0.0047	0.0122	-0.0033	-0.0264	0.0244	0.0074	0.0274
	(0.232)	(0.343)	(-0.154)	(-0.540)	(1.305)	(0.342)	(0.966)
Firm and year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5 305	1 697	1 450	872	4 072	1 893	2 940
P-value of Hansen test	0.2118	0.1288	0.6391	0.9378	0.3982	0.4629	0.3286

Note: This table reports coefficients from the firm and year fixed effects regressions using two stage least square estimations for the sample period 1991 to 2007 using our baseline model (equation 1). We employ IBES median financial analysts' forecasts of the two-year-ahead earnings scaled by lagged total assets as instrument for *Q*. The set of instruments also includes lags of investment, cash flow, CSA variables and the interactions. All variables are defined in the note to Table 1.1. Robust and clustered (by firm) t-statistics are reported in parentheses. ***, **, * indicates significance at the 1%, 5% and 10% level, respectively.

Overall and after controlling for the endogeneity of Tobin's Q, our results remain qualitatively the same as those obtained in Tables 1.3 and 1.4. These results show that high levels of CSA_TOT and CSA_CON do not impact a firm's financing constraints, while high CSA_STR scores have a negative effect on these constraints. As we posit in our first and second hypotheses, we find a negative impact of high levels of CSA_TOT and CSA_STR on a firm's access to external capital for financially constrained firms, and no impact for financially unconstrained firms. Also, our findings show that high CSA_CON scores have no effect on corporate financing constraints for all the samples.

1.5.2. Q model using 2SLS estimations with negative cash flows eliminated

Constrained firms may not exhibit a higher sensitivity of investment to cash flows if the sample of constrained firms includes firms in financial distress (Fazzari *et al.*, 2000). Financially distressed firms can not invest less when their cash flows are decreasing because they have already reduced their investments. Therefore, the investment-cash flow sensitivity for these firms is lower compared to financially non-distressed firms. Allayannis and Mozumdar (2004) provide empirical evidence in support of this argument and explain Cleary's result with negative cash flow observations. Also, Bhagat *et al.* (2005) investigate whether the investment policy of distressed firms differs from that of non-distressed firms and find that financially distressed firms have negative investment-cash flow sensitivities. We account for this possibility by repeating all our 2SLS regressions (Tables 1.5 and 1.6) that control for endogeneity in Tobin's Q, when firms with negative cash flow observations are deleted from our samples.

Table 1.7 reports the results of 2SLS estimations that test the effect of high CSA_TOT scores on a firm's access to external capital for the undifferentiated and differentiated samples excluding negative cash flow observations and controlling for the endogeneity of Tobin's Q. Our earlier conclusions, when negative cash flow observations are not excluded, remain unchanged for all the samples.

Table 1.7: Investment-cash flow sensitivity and CSA_TOT for samples excluding negative cash flows observations: 2SLS estimations with endogenous Q

Variables	Whole sample	Constrained			Unconstrained		
		BR	WW index	Size	BR	WW index	Size
Cash flow	0.0655***	0.0460**	0.0246	0.0262	0.0884***	0.0689	0.0753***
	(2.668)	(2.479)	(0.669)	(0.984)	(3.245)	(1.495)	(4.233)
Lagged Q	0.0415***	0.0159	0.0253	0.0615***	0.0529***	0.0275	0.0662***
	(3.980)	(0.902)	(1.315)	(2.634)	(5.364)	(1.559)	(5.165)
CSA_TOT	-0.0127	-0.0769**	-0.0403	-0.0722	0.0135	-0.0084	0.0072
	(-0.693)	(-2.074)	(-1.212)	(-1.377)	(0.992)	(-0.368)	(0.629)
CSA_TOT_Cash flow	0.0187	0.0525**	0.0875*	0.0319	-0.0197	0.0261	-0.0008
	(0.672)	(2.416)	(1.813)	(1.133)	(-0.844)	(0.647)	(-0.044)
Firm and year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4 011	1 610	1 006	860	2 909	1 592	2 603
P-value of Hansen test	0.9075	0.8766	0.5785	0.1472	0.9890	0.9896	0.3044

Note: This table reports coefficients from the firm and year fixed effects regressions using two stage least square estimations for the sample period 1991 to 2007 using our baseline model (equation 1). We employ IBES median financial analysts' forecasts of the two-year-ahead earnings scaled by lagged total assets as instrument for Q. The set of instruments also includes lags of investment, cash flow, CSA variables and the interactions. All variables are defined in the note to Table 1.1. Robust and clustered (by firm) t-statistics are reported in parentheses. ***, **, * indicates significance at the 1%, 5% and 10% level, respectively.

The re-estimates of the same regressions for the same subsamples using CSA_STR and CSA_CON are reported in Table 1.8. The findings for CSA_STR are qualitatively the same as those reported earlier in Table 1.4 and Table 1.6 for the constrained and unconstrained subsamples. However, the results for CSA_CON differ from our earlier findings. We now get some evidence that high CSA_CON scores negatively affect a firm's access to financial markets. The incremental effect for high CSA_CON scores samples of cash flow on investment is positive and significant when bond ratings (bond ratings and size) is (are) used as the financial constraint indicator for financially constrained (unconstrained) firms.

Table 1.8: Investment-cash flow sensitivity and CSA_STR and CSA_CON for samples excluding negative cash flows observations: 2SLS estimations with endogenous *Q*

Variables	Whole sample	Constrained			Unconstrained		
		BR	WW index	Size	BR	WW index	Size
Cash flow	0.0504**	0.0246	0.0202	0.0147	0.0479**	0.0971**	0.0391*
	(2.346)	(0.867)	(1.107)	(0.624)	(2.121)	(2.081)	(1.699)
Lagged *Q*	0.0552***	0.0739**	0.0402*	0.0669	0.0470***	0.0332**	0.0583***
	(5.683)	(2.120)	(1.836)	(1.231)	(4.697)	(2.198)	(3.863)
CSA_STR	0.0059	-0.0735**	-0.0244	-0.0535	0.0289	0.0236	0.0178
	(0.438)	(-2.564)	(-0.862)	(-1.360)	(1.379)	(1.112)	(1.246)
CSA_CON	-0.0220	-0.0172	0.0256	-0.0227	-0.0350**	-0.0094	-0.0279*
	(-1.400)	(-0.415)	(0.849)	(-0.597)	(-2.122)	(-0.616)	(-1.845)
CSA_STR*Cash flow	0.0023	0.0684*	0.1108**	0.1234**	-0.0273	-0.0448	-0.0021
	(0.088)	(1.725)	(2.303)	(2.161)	(-0.651)	(-0.946)	(-0.085)
CSA_CON*Cash flow	0.0348	0.0953**	-0.0121	0.1012	0.0755**	0.0066	0.0693***
	(1.203)	(1.962)	(-0.268)	(1.081)	(2.291)	(0.231)	(2.677)
Firm and year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4 278	969	978	560	2 438	1 553	1 604
P-value of Hansen test	0.4004	0.9190	0.7890	0.8728	0.3521	0.2238	0.2753

Note: This table reports coefficients from the firm and year fixed effects regressions using two stage least square estimations for the sample period 1991 to 2007 using our baseline model (equation 1). We employ IBES median financial analysts' forecasts of the two-year-ahead earnings scaled by lagged total assets as instrument for *Q*. The set of instruments also includes lags of investment, cash flow, CSA variables and the interactions. All variables are defined in the note to Table 1.1. Robust and clustered (by firm) t-statistics are reported in parentheses. ***, **, * indicates significance at the 1%, 5% and 10% level, respectively.

In summary, the regression findings of 2SLS estimations that control for the endogeneity of Tobin's Q and that exclude negative cash flows observations support our three hypotheses.

1.5.3. Endogeneity of CSA measures

Some theoretical hypotheses claim that an interactive positive or negative relationship exists between corporate social performance (CSP) and financial performance (CFP). Waddock and Graves (1997) find support for the positive synergy argument which is also called the ''virtuous circle''. According to them, a better social performance can lead to better financial performance (social impact hypothesis), which in turn can lead to better social performance (slack resources hypothesis). The negative synergy is also possible in that higher levels of CSP lead to decreased CFP, which in turn limits socially responsible investments. There may then be a simultaneous negative relation forming a ''vicious circle'' (Makni *et al.,* 2009).

Herein, the synergetic hypothesis implies the possibility of a simultaneous relationship between CSR commitment and a firm's access to financial markets. Such a possibility raises potential endogeneity in the CSA measures. To deal with this potential concern we re-estimate our equation (1) using two-stage least squares and our different samples. This enables us to check if the results obtained earlier still hold. In the first stage, we predict a CSA measure using a set of instruments including the industry average CSA measure (El Ghoul *et al.*, 2011). The other instruments employed include lags of investment, cash flow, their interaction and CSA variables. All estimations control for firm and year fixed effects. In the second stage, we use the predicted values of a CSA measure to evaluate the sensitivity of corporate investment to cash flow. All these estimations control for firm and year fixed effects and only the results of the second stage estimation are reported.

Table 1.9 (1.10) provides the results of the 2SLS estimations which control for the endogeneity of the aggregate CSA_TOT (CSA_STR and CSA_CON) and use the different samples with all cash flows observations. The findings for CSA_TOT and CSA_STR are qualitatively the same as those reported earlier in Tables 1.3 and 1.4 for the constrained and unconstrained subsamples. Nevertheless, the earlier insignificant results for CSA_CON change and show now that high CSA_CON scores negatively affect a firm's access to financial markets. The incremental effect for high CSA_CON scores samples of cash flow on investment is positive and significant for two out of three financial constraint proxies used both for the financially constrained and unconstrained firms. Overall, the regression findings of 2SLS estimations that control for the endogeneity of CSA measures give support to our three hypotheses.

Table 1.9: Investment-cash flow sensitivity and CSA_TOT for samples including negative cash flows observations: 2SLS estimations with endogenous CSA_TOT

Variables	Whole sample	Constrained			Unconstrained		
		BR	WW index	Size	BR	WW index	Size
Cash flow	0.0241	-0.0390*	-0.0173	-0.0497***	0.0440**	0.0425*	0.0422**
	(1.626)	(-1.818)	(-0.671)	(-4.017)	(2.279)	(1.904)	(2.284)
Lagged *Q*	0.0519***	0.0681***	0.0507***	0.1007***	0.0464***	0.0479***	0.0488***
	(8.758)	(5.092)	(4.151)	(5.222)	(6.434)	(4.887)	(4.916)
CSA_TOT	0.1575	-0.7121	-0.0432	-0.2972	-0.0981	0.1410	-0.0271
	(1.095)	(-1.284)	(-0.522)	(-0.786)	(-0.623)	(0.859)	(-0.211)
CSA_TOT_Cash flow	-0.0035	0.0743*	0.0514*	0.0574***	-0.0062	-0.0298	-0.0151
	(-0.182)	(1.857)	(1.806)	(2.996)	(-0.244)	(-0.783)	(-0.532)
Firm and year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	6 673	1 484	1 333	757	4 297	2 017	3 095
P-value of Hansen test	0.2172	0.2691	0.7745	0.8498	0.7593	0.3795	0.8566

Note: This table reports coefficients from the firm and year fixed effects regressions using two stage least square estimations for the sample period 1991 to 2007 using our baseline model (equation 1).We employ the industry average CSA_TOT (El Ghoul *et al.*, 2011) as instrument for firm CSA_TOT. The set of instruments includes lags of investment, cash flow, their interaction and CSA_TOT. All variables are defined in the note to Table 1.1. Robust and clustered (by firm) t-statistics are reported in parentheses. ***, **, * indicates significance at the 1%, 5% and 10% level, respectively.

Table 1.10: Investment-cash flow sensitivity and CSA_STR and CSA_CON for samples including negative cash flows observations: 2SLS estimations with endogenous CSA_STR and CSA_CON

	Whole sample	Constrained			Unconstrained		
VARIABLES		BR	WW index	Size	BR	WW index	Size
Cash flow	-0.0093	-0.0448	-0.0351	-0.0689	0.0027	0.0282	-0.0007
	(-0.349)	(-1.561)	(-1.003)	(-1.586)	(0.168)	(0.779)	(-0.022)
Lagged *Q*	0.0487***	0.0537***	0.0522***	0.0762***	0.0430***	0.0493***	0.0461***
	(5.595)	(4.161)	(4.792)	(3.599)	(5.938)	(3.936)	(4.422)
CSA_STR	0.1295	-0.2675	-0.0270	-0.3403	0.1207	0.0203	-0.0057
	(0.463)	(-1.045)	(-0.509)	(-0.566)	(0.756)	(0.596)	(-0.152)
CSA_CON	-0.0469	-0.2981	-0.2179**	-0.4423	-0.0018	-0.1055	-0.0605
	(-0.677)	(-1.024)	(-2.199)	(-1.554)	(-0.036)	(-1.098)	(-1.101)
CSA_STR*Cash flow	0.0297	0.1017**	0.0705*	0.1774**	-0.0093	-0.0436	0.0108
	(0.500)	(2.440)	(1.670)	(1.967)	(-0.180)	(-1.256)	(0.364)
CSA_CON*Cash flow	0.0404	0.0603	0.0850*	0.1458**	0.0378	0.0611*	0.0567*
	(1.457)	(1.197)	(1.877)	(2.573)	(1.192)	(1.735)	(1.767)
Firm and year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3 458	1 835	1 177	702	2 991	1 582	2 433
P-value of Hansen test	0.6038	0.3165	0.8833	0.5233	0.1881	0.5207	0.2047

Note: This table reports coefficients from the firm and year fixed effects regressions using two stage least square estimations for the sample period 1991 to 2007 using our baseline model (equation 1).We employ the industry average of CSA_STR and CSA_CON (El Ghoul *et al.*, 2011) as instrument for firm CSA_STR and CSA_CON. The set of instruments includes lags of investment, cash flow, their interaction and CSA_STR and CSA_CON. All variables are defined in the note to Table 1.1. Robust and clustered (by firm) t-statistics are reported in parentheses. ***, **, * indicates significance at the 1%, 5% and 10% level, respectively.

1.5.4. Investment versus non-investment grade bond ratings

Following Whited (1992) and Kashyap *et al.* (1994), we earlier used the existence of a bond rating[10] as an empirical measure of whether or not firms are externally financially constrained. Nevertheless, such classification might be a problem since the constrained group includes firms without bond ratings and that have chosen to rely on equity financing despite having the capacity to issue debt. Therefore, as a further sensitivity test, we use another bond ratings proxy; namely, whether or not the rating is investment or non-investment grade. Consequently our indicator dummy variable of the financing constraint is equal to zero if the firm has a bond rating of BBB- and more from S&P (financially unconstrained) and one if the firm's bond rating is BB+ or less (financially constrained).

Using this financial constraint proxy, we re-estimate our different models. Based on untabulated results, the inferences obtained earlier remain generally unchanged.

[10] The sample is composed of 8607 firms with bond ratings (49.57%) and 8755 firms with no bond ratings (50.43%).

1.6. Conclusion

In this paper we studied the differential effect of high CSA scores on a firm's access to external financing using a Q model framework and a sample (not) differentiated by whether or not the firms were financially constrained. We assessed whether or not our findings hold when subjected to additional tests of robustness related to the endogeneity of Tobin's Q, simultaneous relationship between a firm's social commitments and its financing constraints, and the inclusion of negative cash flows observations.

Cumulatively, our findings show that when the sample is undifferentiated high levels of CSA (CSA_TOT, CSA_STR and CSA_CON) have no effect on a firm's financing constraints. However, the findings for the differentiated samples reveal that high levels of discretionary CSA (CSA_TOT and CSA_STR) have a negative impact on access to external capital only for financially constrained firms. This result is supportive of the finding of Goss and Roberts (2011) that discretionary CSR commitments are associated with differential access to bank loan financing (i.e., higher loan spreads and shorter maturities) only for low-quality borrowers (i.e. likely under financial constraints).

Our results also provide some evidence that high non-discretionary CSA (CSA_CON) scores negatively affect a firm's access to financial markets for both financially constrained and unconstrained firms. This also is consistent with the Goss and Roberts (2011) finding that firms with social concerns pay between 7 and 18 basis points more than firms that are more responsible.

With regard to the managerial implications and strategic use of CSR to improve a firm's access to financial markets, this study highlights the importance of the firm's financing position and the distinction between discretionary versus non-discretionary social commitments. For all firms, only non-discretionary social actions targeting any possible concerns could improve access to external capital. These actions seem to reduce the likelihood of negative future social events and thus are valued by investors. However, managers have to be cautious when investing in discretionary social activities. While the market is indifferent to such involvement when the firm is financially unconstrained, it

negatively perceives such investments when the firm is financially constrained, which worsens the firms access to external financing.

Future studies might extend our research in different ways. For instance, other social data sources could be used instead of KLD. Also, the potential temporal effect might be tested by linking the lagged CSR measures to the current financing constraints variables.

REFERENCES

Akpinar, A., Jiang, Y., Mejia, L.R., Berrone, P. and Walls, J. (2008), ''Strategic use of CSR as a signal for good management'', IE Business School Working paper WP08-25, available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1134505.

Allayannis, G. and Mozumdar, A. (2004), ''The impact of negative cash flow and influential observations on investment-cash flow sensitivity estimates'', *Journal of Banking and Finance*, 28: 901–930.

Almeida, H. and Campello, M. (2007), ''Financial constraints, asset tangibility, and corporate investment'', *The Review of Financial Studies*, 20: 1429–60.

Almeida, H., Campello, M. and Weisbach, M. (2004), ''The cash flow sensitivity of cash'', *Journal of Finance,* 59: 1777–1804.

Barnea, A. and Rubin, A. (2010), ''Corporate social responsibility as a conflict between shareholder'', Journal *of Business Ethics*, 97: 71–86.

Belkaoui, A. (1976), ''The impact of the disclosure of the environmental effects of organizational behaviour on the market'', *Financial Management*, 5(4): 26-31.

Bhagat, T.S., Moyen, N. and Suh, I. (2005), ''Investment and internal funds of distressed firms'', *Journal of Corporate Finance,* 11: 449– 472.

Bird, R., Hall, A., Momente, F. and Reggiani, F. (2007), ''What corporate social responsibility activities are valued by the market?'', *Journal of Business Ethics*, 76: 189–206.

Bond, S. and Meghir, C. (1994), ''Dynamic investment models and the firm's financial policy'', *Review of Economic Studies,* 61: 197–222.

Bowman, E.H. (1980), ''A risk/return paradox for strategic management'', *Sloan Management Review*, 21(3): 17–31.

Carroll, A. B. (1979), ''A three-dimensional conceptual model of corporate performance'', *The Academy of Management Review*, 4: 497-505.

Chen, R., Dyball, M.C. and Wright, S. (2009), ''The link between board composition and corporate diversification in Australian corporations'', *Corporate Governance: An International Review*, 17(2): 208-223.

Cleary, S. (1999), ''The relationship between firm investment and financial status'', *Journal of Finance,* 54: 673–692.

Cummins, J., Hasset, K. and Oliner, S. (1999), ''Investment behavior, observable expectations, and internal funds'', *American Economic Review*, 96(3): 796–810.

Derwall, J., and Verwijmeren, P. (2007), ''Corporate Social Responsibility and the implied cost of equity capital'', Working paper.

El Ghoul, S., Guedhami, O., Kwok, C.Y. and Mishra, D. (2011), ''Does corporate social responsibility affect the cost of capital?'', *Journal of Banking and Finance*, 35(9): 2388-2406.

Erickson, T. and Whited, T. (2000), ''Measurement error and the relationship between investment and Q'', *Journal of Political Economy*, 108: 1027-1057.

Fazzari, S.M., Hubbard, R.G. and Petersen, B.C. (1988), ''Financing constraints and corporate investment'', *Brookings Papers on Economic Activity*, 1: 141–195.

Fazzari, S.M., Hubbard, R.G. and Petersen, B.C. (2000), ''Investment-cash flow sensitivities are useful: A comment on Kaplan and Zingales'', *Quarterly Journal of Economics*, 115: 695–705.

Feldman, S.J., Soyka, P.A. and Ameer, P.G. (1997), ''Does improving a firm's environmental management system and environmental performance result in a higher stock price?'', Environmental Group Study, ICF Kaiser International, Inc.: Fairfax, VA.

Fombrun, C.J., Gardberg, N.A. and Barnett, M.L. (2000), ''Opportunity platforms and safety nets: Corporate citizenship and reputational risk'', *Business and Society Review*, 105(1): 85–106.

Friedman, M. (1970), "The social responsibility of business is to increase its profits", *New York Times Magazine*, 13 September: 122–126.

Gilchrist, S. and Himmelberg, C.P. (1995), ''Evidence on the role of cash flow in reduced-form investment equations'', *Journal of Monetary Economics,* 36: 541–572.

Godfrey, P. C. (2005), ''The relationship between corporate philanthropy and shareholder wealth: A risk management perspective'', *Academy of Management Review,* 30: 777–798.

Goss, A., and Roberts, G. S. (2011), ''The impact of corporate social responsibility on the cost of bank loans'', *Journal of Banking and Finance,* 35: 1794–1810

Guariglia, A. (2008). "Internal financial constraints, external financial constraints, and investment choice: Evidence from a panel of UK firms", *Journal of Banking and Finance,* 32, 1795–1809.

Hahn, J. and Lee, H. (2009), ''Financial constraints, debt capacity, and the cross-section of stock returns'', *The Journal of Finance*, 64(2): 891-921.

Hamilton, S., Jo, H. and Statman, M. (1993), ''Doing well while doing good? The investment performance of socially responsible mutual funds'', *Financial Analysts Journal*, 49: 62–66.

Heal, G. (2005), ''Corporate social responsibility: An economic and financial framework'', The Geneva Papers on Risk and Insurance - Issues and Practice, 30(3): 387-409.

Heinkel, R., Kraus, A. and Zechner, J. (2001), "The effect of green investment on corporate behavior", *Journal of Financial and Quantitative Analysis*, 36: 431-449.

Hennessy, C. A. and Whited, T.M., (2007), ''How costly is external financing? Evidence from a structural estimation'', *Journal of Finance*, 62(4): 1705-1745.

Hong, H. and Kacperczyk, M. (2009), "The price of sin: The effects of social norms on markets", *Journal of Financial Economics*, 93: 15–36.

Hoshi, T., Kashyap, A.K. and Scharfstein, D. (1991), ''Corporate structure, liquidity, and investment: Evidence from Japanese panel data'', *Quarterly Journal of Economics,* 106: 33–60.

Hubbard, R.G. (1998), ''Capital-market imperfections and investment'', *Journal of Economic Literature*, 36: 193–225.

Husted, B.W. (2005), ''Risk management, real options, and corporate social responsibility'', *Journal of Business Ethics,* 60: 175–183.

Ioannou, I. and Serafeim, G. (2010), ''The impact of corporate social responsibility on investment recommendations'', Working Paper 11-017, Harvard business school, available at http://www.hbs.edu/research/pdf/11-017.pdf.

Jensen, M.C. and Meckling, W.H. (1976), "Theory of the firm: Managerial behavior, agency costs and ownership structure", *Journal of Financial Economics*, 3: 305–360.

Kadapakkam, P.R., Kumar, P.C. and Riddick, L.A. (1998), ''The impact of cash flows and firm size on investment: The international evidence'', *Journal of Banking and Finance*, 22: 293–320.

Kaplan, S.N. and Zingales, L. (1997), ''Do investment-cash flow sensitivities provide useful measures of financing constraints?'', *Quarterly Journal of Economics*, 112: 169–215.

Kaplan, S.N. and Zingales, L. (2000), ''Investment-cash flow sensitivities are not valid measures of financing constraints'', *Quarterly Journal of Economics*, 115: 707–712.

Karpoff, J.M., Lott, J.R. and Wehrly, E.W. (2005), "The reputational penalties for environmental violations: Empirical evidence", *Journal of Law and Economics*, 48: 653-675.

Kashyap, A.K., Lamont, O.A. and Stein, J.C. (1994). "Credit conditions and the cyclical behavior of inventories", *Quarterly Journal of Economics,* 109: 565–592.

Lamont, O. (1997), ''Cash flow and investment: Evidence from internal capital markets'', *Journal of Finance,* 52: 83–110.

Lamont, O., Polk, C. and Saa-Requejo, J. (2001), ''Financial constraints and stock returns'', *Review of Financial Studies*, 14: 529-54.

Lombardo, D. and Pagano, M. (2002), "Law and equity markets, a simple model," in Joseph A. McCahery, ed.: *Corporate Governance Regimes: Convergence and Diversity* (Oxford University Press, London).

Makni, R., Francoeur, C. and Belleavance, F. (2009), ''Causality between corporate social performance and financial performance: Evidence from Canadian firms'', *Journal of Business Ethics*, 89: 409–422

Mattingly, J.E. and Berman, S.L. (2006), ''Measurement of corporate social action: Discovering taxonomy in the Kinder Lydenberg Domini ratings data'', *Business and Society,* 45(1): 20–46.

McGuire, J., Sundgren, A. and Schneeweis, T. (1988), ''Corporate social responsibility and firm financial performance'', *Academy of Management Journal*, 31(4): 854-72.

McWilliams, A. and Siegel, D. (2000), ''Corporate social responsibility and financial performance: correlation or misspecification'', *Strategic Management Journal*, 21: 603-609.

McWilliams, A. and Siegel, D. (2001), "Corporate social responsibility: a theory of the firm perspective'', *Academy of Management Review*, 26 (1): 117–127.

Merton, R. C. (1987), ''A simple model of capital market equilibrium with incomplete information'', *Journal of Finance*, 42: 483-510.

Modigliani, F. and Miller, H. (1958), ''The cost of capital, corporation finance, and the theory of investment'', *American Economic Review*, 48: 261-297.

Myers, S.C. and Majluf, N.S. (1984), ''Corporate financing and investment decisions when firms have information that investors do not have'', *Journal of Financial Economics*, 13: 187–221.

Orlitzky, M. and Benjamin, J.D. (2001), "Corporate social responsibility and firm risk: A meta-analytic review", *Business and Society*, 40(4): 369-396.

Preston, L. E. and O'Bannon, D. P. (1997), "The corporate social–financial performance relationship: A typology and analysis'', *Business and Society*, 36: 419–429.

Rehbein, K., Waddock, S., and Graves, S. (2004), ''Understanding shareholder activism: Which corporations are targeted?'', *Business and Society,* 43(3): 239-267.

Reverte, C. (2011), ''The impact of better corporate social responsibility disclosure on the cost of equity capital '', *Corporate Social Responsibility and Environmental Management*, available online at wileyonlinelibrary.com.

Schaffer, M.E. (2010), ''xtivreg2: Stata module to perform extended IV/2SLS, GMM and AC/HAC, LIML and k-class regression for panel data models'', available at http://ideas.repec.org/c/boc/bocode/s456501.html.

Sharfman, M.P. and Fernando, C.S. (2008), ''Environmental risk management and the cost of capital'', *Strategic Management Journal,* 29: 569–592.

Social Investment Forum Foundation, (2010), ''Report on socially responsible investing trends in the United States'', available at http://ussif.org/.

Spicer, B.H. (1978), ''Investors, corporate social performance and information disclosure: An empirical study'', *Accounting Review,* 53(1): 94–111.

Tobin, J. (1969), "A general equilibrium approach to monetary theory", *Journal of Money Credit and Banking*, 1 (1): 15-29.

Waddock, S.A. and Graves, S.B. (1997), ''The corporate social performance–financial performance link'', *Strategic Management Journal,* 18: 303–319.

Whited, T. (1992), ''Debt, liquidity constraints, and corporate investment: Evidence from panel data'', *Journal of Finance,* 47: 425–60.

Whited, T. and Wu, G. (2006), ''Financial constraints risk'', *Review of Financial Studies,* 19: 531–559.

CHAPITRE II

ARTICLE 2

THE EFFECTS OF FINANCIAL CONSTRAINTS ON CORPORATE SOCIAL ACTIONS

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THE EFFECTS OF FINANCIAL CONSTRAINTS ON CORPORATE SOCIAL ACTIONS

Abstract

Using a large unbalanced panel data set of US firms over the period from 1991 to 2007, we examine whether the financial constraints faced by firms affect their social actions. The baseline model that incorporates cash flows and financial constraint measures is estimated using firm and year fixed effects and two stage least squares.

Our findings show that financial constraints negatively affect discretionary corporate social actions (CSA) and that aggregated and strengths-based CSA measures have lower net sensitivity to free cash flows for financially constrained firms. Thus, financial constraints cause firms at least to reduce their commitment to social activities. Non-discretionary CSA dealing with social concerns are not affected by a firm's internal liquidity and access to external financing.

Keywords: Corporate social actions, strengths, concerns, financial constraints, investment, cash flows.

JEL Classification: G32; M14.

2.1. Introduction

If market imperfections cause external funding to cost more than internal funding, then the mix of funding sources used affects the extent of corporate real investment. Myers and Majluf (1984) argue that the extra cost derives from information asymmetries. If less transparent firms pay larger premia for external funds,[11] then their real investment level becomes constrained by their limited access to cheaper internal funds. Such differential sensitivities of real investment to firm cash flows constitute a rich vein of research initiated by Fazzari *et al.* (1988). Over the last three decades, corporate investments in social activities have become both important and visible based on their coverage in annual corporate reports and other corporate disclosures. Firms increasingly respond to *social* demands from stakeholders (customers, employees, suppliers, communities, governments, NGOs and socially motivated shareholders) by, for example, acquiring environmentally friendly equipment, using clean energy, implementing less polluting processes and supporting community development programs.

In this study, we investigate how corporate social commitments are linked to internal cash flows and how the link differs between financially constrained and unconstrained firms. For our empirical tests, we rely on a U.S. dataset of 17 362 firm-year observations from the 1991-2007 period. We use a baseline Q model where measures of corporate social actions are related to firm financial constraints and related characteristics, including Tobin's Q as a proxy for firm growth opportunities, or propensity to invest.

Our work is meant to contribute in various ways. First, rather than relating social commitment variables to classical corporate financial performance measures, we link them to various financial constraint proxies. Thus, we highlight a direct link between the firm's funding mix and its social actions. Second, we distinguish between social actions that are

[11] Myers and Majluf (1984) argue that net present value projects may remain unfinanced because outside fund providers do not access enough information. In turn, project rejection increases the cost of capital by a risk premium. This is tantamount to saying that outside capital will not flow to opaque or less transparent firms unless it is primed.

purely discretionary versus those that are non-discretionary from the firm's perspective. Third, our findings add weight to the view that liquidity constrained firms reduce their social commitments when financially constrained. Finally, we add general support to the slack resources hypothesis whereby past sizable wealth creation conditions subsequent social commitments.

The remainder of this paper is organized as follows. In the second section, we discuss the relevant literature. In the third section, we describe our sample and data, define our model and variables, and present our testable hypotheses. We present and analyze the results in the fourth section, and conduct robustness checks in the fifth section, before concluding in the sixth section.

2.2. Review of the literature

2.2.1. Financial constraints

According to Lamont *et al.* (2001), financial constraints refer to: ''frictions that prevent the firm from funding all desired investments. This inability to fund investment might be due to credit constraints or inability to borrow, inability to issue equity, dependence on bank loans, or illiquidity of assets''.

Fazzari *et al.* (1988) document that investments of firms with low dividend payouts (i.e., likely under financial constraints) are affected more by the availability of internal funds than is the case for firms with high dividend-payouts. Many subsequent studies find a positive relationship between firm investment and cash flow which was interpreted as representing evidence of the existence of financial constraints (Hoshi *et al.,* 1991; Bond and Meghir, 1994; Gilchrist and Himmelberg, 1995; and Hubbard, 1998). One explanation for these results is based on information asymmetries that make external financing more expensive relative to internal financing. These empirical papers use different proxies for financing constraints such as age and size (Devereux and Schiantarelli, 1990; Shin and Kim, 2002), ratings of commercial paper or bonds (Calomiris *et al.*, 1995; Gilchrist and

Himmelberg, 1995), membership in corporate groups (Hoshi *et al.*, 1991; Calem and Rizzo, 1995; Shin and Park, 1998), banking relationships (Houston and James, 2001), and concentration of ownership (Schaller, 1993).

However, Kaplan and Zingales (1997) criticize the manner by which Fazzari *et al.* (1988) classify firms as financially constrained. Using qualitative and quantitative information from financial statements and reports, Kaplan and Zingales (1997) propose an alternate classification method. Applying it to the low dividend payout subsample of Fazzari *et al.* (1988), they find that the least constrained firms have the highest investment-cash flow sensitivity. When Cleary (1999) uses a larger and more heterogeneous sample and another classification method for financing constraints, he finds that investment is more sensitive to cash flows for firms that are least likely to be financially constrained. These two studies conclude that the high sensitivities of investment cash flow cannot be interpreted as being evidence of corporate financial constraints. Subsequent studies try to explain and reconcile the findings of the two groups. According to Allayannis and Mozumdar (2004), the results of Kaplan and Zingales (1997) and Cleary (1999) are driven by negative cash flows and influential observations. After controlling for these effects, they find a positive relationship between investment and cash flows.

Based on the interactions between a cost and a revenue effect, Cleary *et al.* (2007) present a theoretical model that predicts that the investment–cash flow sensitivity is increasing in the degree of asymmetric information when the cost effect is dominant (which supports Fazzari *et al.*, 1988). But, when their classification is based upon a measure correlated with net worth or internal funds, then the results support those of Kaplan and Zingales (1997).

Other authors point out that the results for the investment-cash flow sensitivity depend on the choice of the proxy for financial constraints. According to Guariglia (2008), results consistent with Fazzari *et al.* (1988) are obtained using proxies for external financial constraints such as a firm's size, age, dividend payout and bond ratings. Other studies reporting results consistent with Kaplan and Zingales (1997) use proxies for internal financial constraints that reflect internally generated funds. Hence, if firms are classified on the basis of their external financial constraints, the investment–cash flow relationship could be positive

(cost effect is dominant) or negative (revenue effect is dominant). If the classification is based on internal financial constraints, the investment–cash flow relationship is U-shaped (Guariglia, 2008).

Moyen (2004) demonstrates with simulated financial data that it is hard to identify firms with financing constraints. He concludes that investment–cash flow sensitivity critically depends on the adopted for financing constraints classification.

Hovakimian and Hovakimian (2009) argue that the "traditional indicators" of financial constraints and the Kaplan and Zingales index reflect two distinct aspects of financial constraints. While "traditional indicators" (size, dividend payout, bond ratings, etc.) successfully distinguish firms that may potentially face financing constraints, the Kaplan and Zingales index successfully distinguishes between periods of tight and relaxed constraints.

Overall, these studies suggest that differences in their results are most likely explained by the different ways used by researchers to classify firms as being financially constrained. Nevertheless, while this debate on the relation between firm financing constraints and investment-cash flow continues, various studies use the effects of internal liquidity to investigate firm behaviors such as corporate R&D investment (Bond *et al.*, 1999), inventory investment (Carpenter *et al.*, 1994, 1998; Guariglia, 1999, 2000), exportation (Bellone *et al.*, 2008), employment (Sharpe, 1994; Nickell and Nicolitas, 1999; Spaliara, 2009), firm growth (Carpenter and Peterson, 2002) and executive compensation (Wang, 2006).

2.2.2. Relation between corporate social performance and corporate financial performance

The relevance of corporate social commitments has been questioned for forty-odd years (Friedman, 1970). More recently, the debate centers on the existence, sign and direction of the relationship between corporate social performance (CSP) and corporate financial performance (CFP). While a consensus has yet to be reached about the link between the two, empirical results tend to support a reverse causality where CFP causes CSP.

In theory, CFP might affect CSP positively (slack resources hypothesis) or negatively (managerial opportunism). The former stipulates that extra wealth must be created by firms before they will divert funds towards social activities (Preston and O'Bannon, 1997; Waddock and Graves, 1997). According to the latter hypothesis, opportunistic managers will act to reduce social expenditures in good times so as to secure more personnel gains, and in bad times enact conspicuous social actions designed to justify lower profitability (Preston and O'Bannon, 1997). However, such an opportunistic ''game'' is likely to be quickly detected and discouraged by an informed market.

Most studies investigating the effect of CFP on CSP yield results that support the slack resources hypothesis (Orlitzky *et al.,* 2003; Allouche *et al.,* 2005; Margolis *et al.,* 2007). Different measures of CFP are used, including those that better reflect discretionary resources (free cash flows), and thus are more appropriate to test the slack resources hypothesis. The results are especially strong and positive when both CFP and CSP are more discretionary, as in Seifert *et al.* (2003; 2004) wherein cash flows are related to wholly discretionary cash donations. Bird *et al.* (2006) link discretionary (KLD's CRS strengths) and non-discretionary (KLD's CRS concerns) activities to discretionary resources (free cash flows). In particular, their findings show that internal available discretionary liquidity positively affects more discretionary CSR commitments.

In this paper, we extend the actual literature by linking discretionary and non-discretionary CSR activities not only to internally discretionary available funds but also to externally available resources. Thus, we examine the effects of financial constraints on the sensitivity of social actions to a firm's cash flows when actions differ in their discretionary nature. We expect this sensitivity for less discretionary social actions to be positive and higher for constrained firms versus unconstrained firms. However, for more discretionary social actions we expect a positive and lower sensitivity for constrained firms. Our hypotheses are specified in greater detail in the next section.

2.3. Model, data, variables and hypotheses

2.3.1. Model

To address our research question we investigate how corporate social actions are linked to internal cash flows and how this link differs between financially constrained and unconstrained firms. Following Fazzari *et al.* (1988) and others, we use the following *Q*-model:

$$CSA_{i,t} = \alpha_0 + \alpha_1 FCF_{i,t} + \alpha_2 FC_{i,t} + \alpha_3 FCF_{i,t} * FC_{i,t} + \alpha_4 Q_{i,t} + \alpha_5 Size_{i,t} + \alpha_6 Leverage_{i,t} + \alpha_7 Industry_{i,t} + \sum_i Firm_i + \sum_t Year_t \quad (1)$$

Where:

CSA_{it}: corporate social actions of firm i in year t. [12]

FCF_{it}: free cash flow of firm i in year t scaled by net plant, property and equipment at the beginning of the period (as in Hubbard, 1998; and Moyen, 2004), winsorized at the 1st and 99th percentiles, and adjusted to the industry. Specifically, FCF = (EBIT*(1-Tax rate)+Depreciation-Capex-Change in non cash working capital),[13] where EBIT is earning before interests and taxes, and Capex is capital expenditures. FCF represents the amount of cash that is available for distribution to all investors (including shareholders and debt-holders) and for discretionary uses.

FC_{it}: financial constraint proxy of firm i in year t, which is discussed in greater detail below.

Q_{it}: Tobin's *Q* or the market-to-book asset value ratio of firm i in year t, included in the model as a proxy for firm growth opportunities or propensity to invest. While the book value of assets is readily obtained, the corresponding market value of assets is approximated by the sum of the book value of assets and the market value of common

[12] As in Mattingly and Berman (2006) and Mitnick (2000), we rely on KLD measures of firms' social actions rather than on the more common corporate social performance measures involving outcomes of actions.

[13] All values of the tax rate less (higher) than zero (one) are transformed to zero (one).

stock less the book value of common stock and deferred taxes. Note that Q is winsorized at the 1st and 99th percentiles and adjusted to the industry.[14]

$Size_{it}$: size of firm i in year t, measured by the natural logarithm of the market value of equity.

$Leverage_{it}$: Financial leverage ratio of firm i in year t, as reflected by its long term debt over its market equity, winsorized and adjusted for its industry.

$Industry_{it}$: Industry dummy for firm i in year t based on the 48 industry classification of Fama and French.

Firms: firm dummies to control for firm fixed effects.

Years: year dummies to control for year fixed effects.

In equation (1), α_1 measures the sensitivity of CSA to free cash flow for financially unconstrained firms, whereas α_3 measures the incremental sensitivity of CSA for financially constrained firms.

2.3.2. Data

We use the Kinder, Lydenberg, Domini & Co. (KLD) Socrates database to obtain information about corporate social actions. KLD rates firms annually on seven dimensions of social responsibility, each involving various criteria of strengths and concerns. The dimensions relate to community, diversity, employee relations, environment, product, human rights and corporate governance. The strength (concern) criteria reflect the positive (negative) effects of the firm's social commitments. A rating of "1" (or "0") indicates that the firm has (has not) satisfied the criterion. Besides the qualitative ratings or screens on seven dimensions, six exclusionary concern-only screens may be applied to firms involved in other than a minimal degree in nuclear power, firearms, military, tobacco, alcohol and gambling activities.

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[14] For each year and using the whole sample of COMPUSTAT data, we compute Tobin's Q for each industry ($Q_{ind,t}$) and for each firm in our KLD subsample (Q_{it}). Adjusted Q_{it} is then the Q for the firm (Q_{it}) minus that for its industry ($Q_{ind,t}$).

In conjunction with the social data from KLD's Socrates database, we rely on COMPUSTAT and CRSP as sources of corporate financial and market data over the 1991-2007 period. Our final sample consists of 17,362 firm-year observations. Because of their special nature (in terms of tractability, regulations, etc.), our sample excludes financial firms (SIC codes 6000-6999) and utilities (SIC codes 4900-4999).

2.3.3. Corporate social actions (CSA)

The corporate social measure that is used herein comes from the KLD database. According to Rehbein *et al.* (2004), the KLD measures are multidimensional, recognized for their scientific value and are in widespread use. M'zali *et al.* (2004) identify at least four sources that validate KLD measures from a scientific standpoint. Unfortunately, the measures lack in reproducibility, due namely to the diversity in judging panels and weighting schemes. For example, Waddock and Graves (1997) adopt their own weights based on a panel of three experts in social issues. Others adopt equal weights to measure the aggregate social performance or rely on disaggregate measures, focusing separately on concerns, strengths, or individual dimensions.

Using exploratory factor analysis to uncover patterns of corporate social actions (CSA) latent in KLD data (12 variables), Mattingly and Berman (2006) find four distinct latent constructs: Institutional weakness or concern (ICSA_CON), institutional strength (ICSA_STR), technical weakness or concern (TCSA_CON) and technical strength (TCSA_STR). These four constructs have the advantage of considering both the importance of separating strengths from concerns as well as primary from secondary stakeholders. Thus, it helps to compare more and less discretionary social actions. Whereas CSA concerns equate with the non-discretionary actions that firms must pose in order to meet the minimum in community and legal requirements, CSA strengths can be seen as discretionary CSA beyond this minimum (Bird *et al.*, 2007).

Godfrey *et al.* (2009) distinguish further between primary technical and secondary institutional stakeholders. Primary stakeholders are those who are essential to the operation of the business, and are endowed with both the urgency and the power to enforce their claims. Secondary stakeholders can influence the firm's primary stakeholders, and have legitimate

claims on the firm but lack both the urgency and power to enforce these claims (Mitchell *et al.*, 1997). Hence, social actions targeting secondary stakeholders (ICSA) are more discretionary compared to primary stakeholders (TCSA).

In addition to the four CSA measures of Mattingly and Berman (2006), we consider some aggregate measures since aggregation is still used in the CSR literature. This set of metrics enables us to distinguish between three groups of CSA based on their degree of discretionary nature. Our first group includes strengths-based measures that we associate with discretionary CSA. The second group of concerns-based measures are linked to non-discretionary CSA. Bird *et al.* (2007) show that free cash flows impact positively and more strongly CSAs linked to strengths than concerns. In the final group, we have aggregated-based measures (net score of strengths over concerns) that we link to as rather discretionary CSA.

2.3.4. Hypotheses

In general, and due to allocation priorities, financially constrained firms will use available resources for more promising investments and expenditures. Hence, compared to unconstrained firms, their FCF-CSA sensitivity should be lower for discretionary and rather discretionary CSA and higher for non-discretionary CSA. Thus we hypothesize that:

Hypothesis 1: Free cash flow – CSA aggregated based scores sensitivity should be positive and lower for constrained firms as compared to their unconstrained counterparts.
Hypothesis 2: Free cash flow – CSA strengths based measures sensitivity should be positive and lower for constrained firms as compared to their unconstrained counterparts.
Hypothesis 3: Free cash flow – CSA concerns based scores sensitivity should be negative and higher for constrained firms as compared to their unconstrained counterparts.[15]

2.3.5. Financial constraints (FC)

Our tests require that we classify firms as being financially constrained and unconstrained. Given the lack of agreement in the literature about the best way to capture this

[15] If we consider concerns scores to be negative, expected sensitivity will be positive and higher for constrained firms compared to their unconstrained counterparts.

notion, we rely on three proxies which allow for an assessment of robustness. For each of the three proxies, a dummy variable is created with a value of zero if the firm is financially unconstrained and one if it is constrained.

The first proxy is the bond rating (BR). Whited (1992) and Kashyap *et al.* (1994) use the absence (existence) of a bond rating as an empirical proxy for financially constrained (unconstrained) firms. Following Hahn and Lee (2009), we classify those firms with positive debt with and without a Standard & Poor's (S&P) bond rating in a given year as financially unconstrained and constrained, respectively. Bond ratings signal more transparency and less asymmetric information.[16]

The second proxy is the Whited and Wu index (WW), which is computed using the empirical equation (13) in Whited and Wu (2006). For each sampled firm i at time t:

WW Index= −0.091CF − 0.062DIVPOS + 0.021TLTD − 0.044LNTA +0.102ISG − 0.035SG

Where CF is the ratio of cash and short term investments to total assets;

DIVPOS is a binary indicator equal to 1 if the firm pays cash dividends and 0 otherwise;

TLTD is the ratio of the long-term debt to total assets;

LNTA is the natural log of total assets;

ISG is the sales growth of the firm's industry based on the 48 Fama and French industries; and

SG is the firm's sales growth.

Firms are sorted yearly in ascending order of the WW index levels. Firms with WW index scores higher (less) or equal to the (30^{th}) 70^{th} percentile are classified as financially (un)constrained.

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[16] Justification of this BR proxy for financial constraints dates back to at least Whited (1992). More recently, Whited and Wu (2006) report that 23% (0.3%) of the least (most) financially constrained firms have their bonds rated. Ratings indicate more transparency versus opacity (and thus asymmetric information in their absence).

The third proxy is firm size (Size_fc) as in Almeida *et al.* (2007), Gilchrist and Himmelberg (1995) and Erickson and Whited (2000), among others. We rank firms yearly based on the logarithm of their total assets. We assign firms to the financially constrained (unconstrained) group if they are in the bottom (top) three deciles of the annual asset size distribution.

2.4. Empirical findings

2.4.1. Descriptive statistics

Table 2.1 reports the correlation coefficients for our main variables. Our three proxies for financial constraints (BR, WW Index and Size_fc) are significantly correlated at the 1% level with coefficients ranging from 0.378 to 0.714. Each proxy appears to pick up some unique information. With few exceptions, the correlations between all corporate social actions (CSA) and financial constraints measures are significant and negative. This indicates a possible negative impact of financial constraints on the importance of corporate social activities. The exceptions involve aggregate strengths net of concerns in CSA (CSA_TOT) and its corresponding technical aggregate (TCSA). Both exhibit significant positive correlations with our three financial constraints proxies. The correlations of the free cash flow variable (labeled FCFSWA) with seven CSA measures (not CSA_TOT and TCSA) are all both positive and significant. This suggests that increases in free cash flows may positively affect corporate social actions.

Table 2.1: Correlations between the main variables

	BR	WW Index	Size_fc	CSA_TOT	CSA_STR	CSA_CON	TCSA	ICSA	TCSA_STR	TCSA_CON	ICSA_STR	ICSA_CON	FCFSWA	Size	Leverage
BR	1.000														
WW Index	0.378***	1.000													
Size_fc	0.714***	0.644***	1.000												
CSA_TOT	0.073***	0.076***	0.162***	1.000											
CSA_STR	-0.228***	-0.245***	-0.242***	0.590***	1.000										
CSA_CON	-0.318***	-0.337***	-0.431***	-0.563***	0.334***	1.000									
TCSA	0.133***	0.177***	0.271***	0.733***	0.203***	-0.647***	1.000								
ICSA	-0.027***	-0.086***	-0.042***	0.677***	0.618***	-0.159***	0.074***	1.000							
TCSA_STR	-0.087***	-0.117***	-0.077***	0.477***	0.730***	0.191***	0.472***	0.195***	1.000						
TCSA_CON	-0.207***	-0.274***	-0.352***	-0.514***	0.248***	0.853***	-0.818***	0.044***	0.121***	1.000					
ICSA_STR	-0.224***	-0.243***	-0.266***	0.501***	0.860***	0.295***	-0.025***	0.805***	0.348***	0.256***	1.000				
ICSA_CON	-0.295***	-0.230***	-0.328***	-0.364***	0.279***	0.710***	-0.161***	-0.437***	0.204***	0.315***	0.182***	1.000			
FCFSWA	-0.043***	-0.026***	-0.087***	0.009	0.036***	0.027***	-0.013***	0.025***	0.022***	0.029***	0.038***	0.016***	1.000		
Size	-0.518***	-0.457***	-0.723***	0.007	0.458***	0.460***	-0.163***	0.195***	0.262***	0.355***	0.448***	0.355***	0.096***	1.000	
Leverage	-0.302***	-0.161***	-0.290***	-0.128***	-0.024***	0.124***	-0.123***	-0.084***	-0.054***	0.103***	-0.015***	0.115***	0.000	-0.10***	1.000

Note: This table provides correlation coefficients of key variables for our sample of 17,362 firm-year observations (1991-2007). CSA stands for Corporate Social Actions. WW Index (Whited and Wu index): Firms are sorted yearly in ascending order of the WW index levels. Firms with WW index scores higher (less) or equal to the (30^{th}) 70^{th} percentile are classified as financially (un)constrained. With respect to bond ratings (BR), we consider firms with positive debt but without a Standard & Poor's (S&P) bond rating in a given year as financially constrained. Financially unconstrained firms are those with positive debt and an S&P bond rating in a given year during the sample period. Size_fc: In every year over the 1991–2007 period we rank firms based on the logarithm of their total assets and assign to the financially constrained (unconstrained) group those firms in the bottom (top) three deciles of the annual asset size distribution. CSA_TOT : the total aggregated CSA is the sum of strengths minus sum of concerns; CSA_STR: the aggregated CSA strengths (sum of strengths); CSA_CON: the aggregated CSA concerns (sum of concerns), TCSA: the technical CSA is the sum of technical strengths minus sum of technical concerns; ICSA: the institutional CSA is the sum of institutional strengths minus the sum of institutional concerns; TCSA_STR: the technical CSA strengths is the sum of technical strengths; ICSA_STR: the institutional CSA strengths is the sum of institutional strengths; TCSA_CON: the technical CSA concerns is the sum of technical concerns; ICSA_CON: the institutional CSA concerns is the sum of institutional concerns. FCFSWA: free cash flow = (EBIT*(1-Tax rate)+Depreciation-Capex-Change in non cash working capital) where EBIT is earning before interests and taxes, and Capex is capital expenditures. FCFSWA is scaled by net plant, property and equipment of the beginning of the period, winsorized at the 1st and 99th percentiles, and adjusted to the industry. Size is the natural logarithm of market value of equity. Leverage is the ratio of the long term debt on market equity. Qwa is Tobin's *Q* computed as the ratio of the market value of assets to the book value of assets. The market value of assets is the sum of the book value of assets and market value of common stock less the book value of common stock and deferred taxes. Qwa has been winsorized at the 1st and 99th percentiles and adjusted to the industry. ***, **, * indicates significance at the 1%, 5% and 10% level, respectively.

Control variables Size and Leverage correlate significantly and negatively with all three financial constraint metrics. This is expected since smaller and more leveraged firms generally face more financial constraints. All CSA measures (except CSA_TOT and TCSA) correlate significantly and positively with Size. This indicates that the bigger the firm is, the greater are its CSA strengths and concerns. As expected, Leverage is significantly and positively correlated to all CSA concern-based measures, and significantly and negatively correlated to all the other CSA measures.

Table 2.2 presents the means and their differences for the constrained and unconstrained firms in our sample. Except for the aggregated CSA and TCSA, the unconstrained firms have higher means. Almost all concerns-based scores are higher than their corresponding strengths-based scores for the full, constrained and unconstrained samples. This results in the negative values for the total aggregated CSA and TCSA. However for the ICSA based measures, strengths are larger in magnitude than concerns for all samples which leads to a constantly positive aggregated ICSA. Moreover, while the ICSA strengths are generally higher than the TCSA strengths, ICSA concerns are constantly lower than the TCSA concerns.

Table 2.2: Means of the key variables and their differences under three proxies defining financially constrained (C=1) and unconstrained (U=0) firms

		Grouping by financial constraint								
		Bond rating			WW index			Size_fc		
variable	all sample	C	U	MD	C	U	MD	C	U	MD
Bond rating	0.4957	1	0		0.6393	0.2423	-0.3969***	0.8866	0.1658	-0.7208***
WW index	0.6520	0.8317	0.4714	-0.3603***	1	0		0.9741	0.3417	-0.6324***
Size_fc	0.4292	0.8009	0.0927	-0.7081***	0.6852	0.0292	-0.6560***	1	0	
FCFSWA	-0.0053	-0.2266	0.2123	0.4389***	-0.1364	0.1782	0.3147***	-0.7262	0.3152	1.0414***
Size	7.4490	6.6481	8.2350	1.5870***	6.9499	8.5062	1.5564***	6.1681	8.6555	2.4874***
Leverage	0.2888	0.1286	0.4450	0.3164***	0.2287	0.4122	0.1834***	0.1104	0.4325	0.3221***
CSA_TOT	-0.4299	-0.2613	-0.5957	-0.3344***	-0.2774	-0.6564	-0.3790***	0.0307	-0.7797	-0.8103***
CSA_STR	1.4645	1.0006	1.9205	0.9200***	1.1794	2.2841	1.1047***	1.0696	2.1558	1.0861***
CSA_CON	1.8976	1.2635	2.5210	1.2574***	1.4591	2.9452	1.4861***	1.0413	2.9409	1.8996***
TCSA	-0.8253	-0.6253	-1.0219	-0.3966***	-0.6437	-1.2204	-0.5767***	-0.3956	-1.2654	-0.8698***
ICSA	0.4226	0.3855	0.4592	0.0737***	0.3673	0.6294	0.2621 ***	0.4077	0.5356	0.1279***
TCSA_STR	0.5427	0.4665	0.6177	0.1512 ***	0.4991	0.7194	0.2204***	0.5242	0.6668	0.1426***
TCSA_CON	1.3680	1.0918	1.6396	0.5478***	1.1427	1.9398	0.7970 ***	0.9198	1.9322	1.0124***
ICSA_STR	0.7484	0.4616	1.0304	0.5688 ***	0.5682	1.2556	0.6874***	0.4518	1.2007	0.7488***
ICSA_CON	0.3258	0.0761	0.5712	0.4951***	0.2009	0.6261	0.4253***	0.0441	0.6650	0.6209***

Note: This table provides means of key variables and their differences for the total sample of 17,362 firm-year observations (1991-2007) and for the constrained (C=1) and unconstrained (U=0) subsamples. MD is the mean difference between unconstrained and constrained groups. All variables are defined in the note to Table 2.1. ***, **, * indicates significance at the 1%, 5% and 10% level, respectively.

Overall, the descriptive statistics suggest a positive (negative) link of free cash flow (financial constraints) to CSA scores.

2.4.2. Regression results

The results from estimating our baseline model (1) using firm and year fixed effects regressions linking various corporate social actions (CSA) measures and the free cash flow metric are now presented. Table 2.3 reports regression results aimed at explaining variations in the net of the aggregate score of strengths over concerns (CSA_TOT), TCSA score (technical aggregate CSA) and ICSA score (institutional aggregate CSA). Each dependent variable is involved in the regressions for each of the various financial constraint proxies. The sensitivity of CSA to free cash flow, α_1, is significant and positive for CSA_TOT and ICSA (not TCSA), and α_3 is significant and negative for both of these two dependent variables. This implies that financially constrained firms have lower CSA – free cash flow sensitivity. Thus, results for CSA_TOT and ICSA support our hypothesis 1. As expected, the ICSA (more discretionary actions compared to TCSA) coefficients are higher than those for TCSA (less discretionary actions). This also implies that firms are more likely to engage more in institutional than in technical CSA.

Table 2.3: Firm and year fixed effects regressions of CSA aggregate based measures with Tobin's Q as a proxy for future growth opportunities

VARIABLES	CSA_TOT			TCSA			ICSA		
FCFSWA	0.0333*	0.0474**	0.0628**	-0.0074	0.0130	0.0112	0.0243**	0.0289***	0.0316**
	(1.747)	(2.526)	(2.537)	(-0.752)	(1.026)	(0.773)	(2.188)	(2.673)	(2.335)
Bond rating	0.0256			-0.0371			-0.0114		
	(0.241)			(-0.518)			(-0.181)		
FCFSWA*Bond rating	-0.0335*			0.0111			-0.0262**		
	(-1.711)			(1.062)			(-2.333)		
WW index		0.0811			0.0344			0.0073	
		(1.299)			(0.814)			(0.215)	
FCFSWA* WW index		-0.0438**			-0.0136			-0.0261***	
		(-2.465)			(-1.127)			(-2.695)	
Size_fc			0.3809*			-0.1075			0.2023*
			(1.885)			(-0.861)			(1.851)
FCFSWA*Size_fc			-0.0661***			-0.0124			-0.0326**
			(-2.644)			(-0.850)			(-2.397)
Qwa	-0.0697**	-0.1025***	-0.0901**	-0.0278*	-0.0321	-0.0315	-0.0168	-0.0396**	-0.0254
	(-2.558)	(-2.593)	(-2.442)	(-1.802)	(-1.473)	(-1.485)	(-1.322)	(-2.268)	(-1.619)
Size	-0.0146	-0.0210	0.0323	-0.0149	0.0041	0.0198	0.0183	0.0041	0.0148
	(-0.278)	(-0.325)	(0.473)	(-0.455)	(0.103)	(0.470)	(0.598)	(0.113)	(0.384)
Leverage	-0.0418	-0.0443	0.0203	-0.1213**	-0.1142**	-0.0916	0.0617	0.0468	0.0647
	(-0.518)	(-0.444)	(0.184)	(-2.451)	(-1.978)	(-1.521)	(1.516)	(0.915)	(1.126)
Constant	-0.2814	-0.2775	-0.8155	0.4688*	0.2933	0.3060	-0.4347*	-0.3309	-0.5021
	(-0.683)	(-0.559)	(-1.398)	(1.843)	(0.959)	(0.852)	(-1.733)	(-1.138)	(-1.471)
Firm/year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	17,244	12,073	12,063	17,244	12,073	12,063	17,244	12,073	12,063
R-squared	0.021	0.016	0.018	0.154	0.145	0.152	0.079	0.089	0.082

Note: This table reports regression coefficients from the firm and year fixed effects regressions of CSA aggregate based measures with Tobin's Q as a proxy for future growth opportunities for the total sample of 17,362 firm-year observations (1991-2007). All variables are defined in the note to Table 2.1. Robust and clustered (by firm) t-Statistics are reported in parentheses. ***, **, * indicates significance at the 1%, 5% and 10% level, respectively.

Table 2.4 presents the regression results for the strengths-based measures: total CSA strengths (CSA_STR), TCSA strengths (TCSA_STR) and ICSA strengths (TCSA_STR). All the different specifications exhibit consistent significant positive α_1 and negative α_3. Hence, the sensitivity of measures of CSA strengths to measures of free cash flows is significant and positive and this sensitivity is higher for unconstrained firms in support of our second hypothesis.

Table 2.4: Firm and year fixed effects regressions of CSA strengths based measures with Tobin's Q as a proxy for future growth opportunities

VARIABLES	CSA_STR			TCSA_STR			ICSA_STR		
FCFSWA	0.0616***	0.0512***	0.0854***	0.0181**	0.0199***	0.0298***	0.0307**	0.0253***	0.0400***
	(2.653)	(3.292)	(3.551)	(2.138)	(3.082)	(3.164)	(2.487)	(2.620)	(2.845)
Bond rating	0.1666**			0.1086***			0.0161		
	(1.963)			(2.718)			(0.290)		
FCFSWA*Bond rating	-0.0661***			-0.0175**			-0.0343***		
	(-2.833)			(-2.026)			(-2.759)		
WW index		0.1654***			0.0802***			0.0480	
		(3.318)			(3.604)			(1.575)	
FCFSWA*WW index		-0.0466***			-0.0178***			-0.0237***	
		(-3.345)			(-2.914)			(-2.776)	
Size_fc			1.1979***			0.4363***			0.5092***
			(7.467)			(6.092)			(5.154)
FCFSWA*Size_fc			-0.0900***			-0.0311***			-0.0421***
			(-3.745)			(-3.255)			(-3.007)
Qwa	-0.0324	-0.0616	-0.0426	-0.0059	-0.0100	-0.0091	-0.0124	-0.0308	-0.0153
	(-1.262)	(-1.619)	(-1.178)	(-0.615)	(-0.733)	(-0.690)	(-0.954)	(-1.608)	(-0.837)
Size	0.1333***	0.1346***	0.2126***	0.0525***	0.0529**	0.0934***	0.0840***	0.0942***	0.1037***
	(3.439)	(2.816)	(4.070)	(2.941)	(2.462)	(3.928)	(3.276)	(3.074)	(3.070)
Leverage	0.1167*	0.1021	0.2180***	0.0169	0.0128	0.0636**	0.0778**	0.0637	0.0994**
	(1.925)	(1.305)	(2.686)	(0.787)	(0.484)	(2.336)	(2.241)	(1.495)	(2.082)
Constant	-1.1921***	-1.3005***	-2.4124***	-0.3114**	-0.3456**	-0.8318***	-0.8279***	-0.9496***	-1.2385***
	(-3.743)	(-3.343)	(-5.063)	(-2.191)	(-2.015)	(-3.963)	(-3.948)	(-3.890)	(-4.134)
Firm/year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	17,244	12,073	12,063	17,244	12,073	12,063	17,244	12,073	12,063
R-squared	0.173	0.193	0.218	0.044	0.059	0.072	0.178	0.195	0.201

Note: This table reports regression coefficients from the firm and year fixed effects regressions of CSA strengths based measures with Tobin's Q as a proxy for future growth opportunities for the total sample of 17,362 firm-year observations (1991-2007). All variables are defined in the note to Table 2.1. Robust and clustered (by firm) t-Statistics are reported in parentheses. ***, **, * indicates significance at the 1%, 5% and 10% level, respectively.

Table 2.5 reports the regression results for the CSA concerns-based measures: total CSA concerns (CSA_CON), TCSA concerns (TCSA _CON) and ICSA concerns (TCSA_CON). Significant incremental sensitivity of CSA to free cash flows for constrained firms, α_3, is only obtained using bond ratings as the financial constraint proxy. The net sensitivity ($\alpha_1+\alpha_3$) for constrained firms is negative which implies that these firms tend to reduce their concerns when they have more liquidity. These results support hypothesis 3 only for financially constrained firms when bond ratings are used to measure financial constraints. Furthermore, the negative sensitivity of constrained firms using bond ratings is higher for TCSR than for ICSR. This could be explained by the likelihood that concerns related to primary stakeholders (TCSR) are more risky than those related to secondary stakeholders (ICSR) since the former have the power to enforce their claims on a firm's managers.

Table 2.5: Firm and year fixed effects regressions of CSA concerns based measures with Tobin's Q as a proxy for future growth opportunities

VARIABLES	CSA_CON			TCSA_CON			ICSA_CON		
FCFSWA	0.0281**	0.0035	0.0226	0.0255**	0.0069	0.0186	0.0064	-0.0035	0.0084
	(2.072)	(0.251)	(1.320)	(2.242)	(0.581)	(1.322)	(1.344)	(-0.718)	(1.409)
Bond rating	0.1390*			0.1457**			0.0275		
	(1.796)			(2.369)			(0.958)		
FCFSWA*Bond rating	-0.0325**			-0.0286**			-0.0081*		
	(-2.340)			(-2.446)			(-1.692)		
WW index		0.0861*			0.0458			0.0407**	
		(1.840)			(1.266)			(2.007)	
FCFSWA*WW index		-0.0025			-0.0042			0.0024	
		(-0.193)			(-0.383)			(0.529)	
Size_fc			0.8198***			0.5438***			0.3069***
			(6.057)			(5.004)			(5.849)
FCFSWA*Size_fc			-0.0239			-0.0187			-0.0095
			(-1.399)			(-1.321)			(-1.613)
Qwa	0.0380***	0.0418**	0.0482***	0.0219**	0.0220	0.0224*	0.0043	0.0088	0.0101
	(2.691)	(2.322)	(3.228)	(2.095)	(1.620)	(1.718)	(0.571)	(0.886)	(1.178)
Size	0.1499***	0.1580***	0.1819***	0.0674**	0.0488	0.0736**	0.0657***	0.0901***	0.0889***
	(3.883)	(3.364)	(3.685)	(2.393)	(1.434)	(2.052)	(3.987)	(4.600)	(4.373)
Leverage	0.1601***	0.1484**	0.1992***	0.1383***	0.1270**	0.1552***	0.0161	0.0170	0.0348
	(2.834)	(2.210)	(2.645)	(2.950)	(2.307)	(2.658)	(0.798)	(0.674)	(1.236)
Constant	-0.9217***	-1.0412***	-1.6092***	-0.7802***	-0.6390**	-1.1378***	-0.3932***	-0.6187***	-0.7364***
	(-3.044)	(-2.884)	(-3.880)	(-3.616)	(-2.497)	(-3.779)	(-2.922)	(-3.876)	(-4.017)
Firm/year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	17,244	12,073	12,063	17,244	12,073	12,063	17,244	12,073	12,063
R-squared	0.253	0.260	0.272	0.274	0.277	0.289	0.055	0.074	0.082

Note: This table reports regression coefficients from the firm and year fixed effects regressions of CSA concerns based measures with Tobin's Q as a proxy for future growth opportunities for the total sample of 17,362 firm-year observations (1991-2007). All variables are defined in the note to Table 2.1. Robust and clustered (by firm) t-Statistics are reported in parentheses. ***, **, * indicates significance at the 1%, 5% and 10% level, respectively.

2.5. Tests of robustness

Since our baseline model is a Q-model, we use Tobin's Q as a proxy for unobservable investment opportunities. The problem with the use of the Q-model is that a positive investment-cash flow sensitivity may simply result from a lack of proper controls for unobserved investment opportunities (Hubbard, 1998). Tobin's Q also may suffer from measurement errors (Erickson and Whited, 2000). Gomes (2001), Alti (2003) and Moyen (2004) find that errors and identification problems lead to significant investment–cash flow sensitivity even in the absence of financing frictions. The literature suggests some alternative approaches to deal with problems associated with Tobin's Q that are explored in this section of the paper.

2.5.1. Relative investment

We re-estimate our different models using relative investment as an alternative proxy for future growth opportunities. Following Almeida *et al.* (2004), the relative investment for a given firm in year t is computed as $(I_{t+1} + I_{t+2}) /2I_t$. The investment variable I_t is defined as the sum of capital, R&D and advertising expenditures. Based on untabulated results, all the results obtained earlier with Tobin's Q remain qualitatively unchanged using relative investment.

2.5.2. Two-stage least squares (2SLS)

We re-estimate our baseline model with two-stage least squares as in Cummins *et al.* (2006), Abel and Eberly (2001) and Almeida *et al.* (2004; 2007). In the first stage, we predict Tobin's Q using a set of instruments including median forecasts of financial analysts from IBES of the two-year-ahead earnings scaled by lagged total assets (Almeida *et al.*, 2004; 2007). The other instruments are lags of investment, cash flow, their interaction and the CSA variables. In the second stage, we use the predicted values of Tobin's Q to evaluate the

impact of free cash flows on CSA variables. All these estimations control for firm and year fixed effects and only the results of the second stage estimation are reported.[17]

Based on table 2.6, our earlier results reported previously in table 2.3 are qualitatively unchanged. This supports the first hypothesis for total CSA aggregated score (CSA_TOT) and for ICSA aggregated score. The results of the 2SLS regressions are reported in Table 2.7 for the strengths-based measures: total CSA strengths score (CSA_STR), TCSA strengths score (TCSA_STR) and ICSA strengths score (TCSA_STR). Earlier results using firm and year fixed effects and reported previously in table 2.4 remain qualitatively unchanged. While the differential effect of free cash flows on CSA strengths is negative for the constrained group (α_3), the net sensitivity ($\alpha_1+\alpha_3$) is generally positive or negative for both CSA aggregated and strengths-based measures. Even if liquidity increases, CSA strengths decrease possibly because constrained firms channel their available funds to more pressing and non-discretionary needs.

[17] We use Stata's xtivreg2 command (Schaffer, 2010) which implements 2SLS / IV estimation of the fixed-effects and first-differences panel data models with possibly endogenous regressors.

Table 2.6: Two-Stage Least Squares regressions of CSA aggregate based measures with Tobin's *Q* as a proxy for future growth opportunities

VARIABLES	CSA_TOT			TCSA			ICSA		
FCFSWA	0.0891**	0.0602	0.1233***	0.0219	0.0060	0.0453	0.0406**	0.0479**	0.0542**
	(2.501)	(1.319)	(2.793)	(0.980)	(0.227)	(1.525)	(2.345)	(2.406)	(2.534)
Bond rating	0.0737			-0.0195			0.0060		
	(0.322)			(-0.110)			(0.064)		
FCFSWA*Bond rating	-0.0749**			-0.0104			-0.0359**		
	(-2.034)			(-0.445)			(-2.046)		
WW index		-0.1648			-0.2051			-0.0046	
		(-0.769)			(-1.557)			(-0.067)	
FCFSWA*WW index		-0.0372			0.0056			-0.0327*	
		(-0.825)			(0.212)			(-1.830)	
Size_fc			0.7429			0.1541			0.2549
			(1.542)			(0.449)			(1.221)
FCFSWA*Size_fc			-0.1272***			-0.0474			-0.0563**
			(-2.761)			(-1.497)			(-2.554)
Qwa	1.1818	0.7310	1.1567	1.0842*	0.6391	1.1780*	0.0937	0.1087	0.1235
	(1.343)	(1.047)	(1.206)	(1.721)	(1.607)	(1.648)	(0.354)	(0.440)	(0.281)
Size	-0.1228	-0.2876*	-0.1603	-0.0465	-0.0826	-0.0906	-0.0231	-0.0750	-0.0532
	(-1.019)	(-1.654)	(-0.866)	(-0.523)	(-0.787)	(-0.704)	(-0.463)	(-1.256)	(-0.615)
Leverage	0.0370	0.0365	0.0695	-0.0860	-0.1116	-0.0994	0.0728	0.0622	0.0665
	(0.266)	(0.192)	(0.352)	(-0.811)	(-1.065)	(-0.773)	(1.291)	(0.878)	(0.784)
Firm/year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	10,156	4,966	6,190	10,156	4,966	6,190	10,156	6,794	6,201
P-value of Hansen test	0.3732	0.3602	0.1756	0.5604	0.4521	0.2873	0.7452	0.4662	0.8720

Note: This table reports regression coefficients from the Two-Stage Least Squares regressions of CSA aggregate based measures with Tobin's *Q* as a proxy for future growth opportunities for the total sample of 17,362 firm-year observations (1991-2007). All variables are defined in the note to Table 2.1. Robust and clustered (by firm) t-Statistics are reported in parentheses. ***, **, * indicates significance at the 1%, 5% and 10% level, respectively.

Table 2.7: Two-Stage Least Squares regressions of CSA strengths based measures with Tobin's Q as a proxy for future growth opportunities

VARIABLES	CSA_STR			TCSA_STR			ICSA_STR		
FCFSWA	0.1124***	0.0862**	0.1293***	0.0476**	0.0295**	0.0438**	0.0550***	0.0469**	0.0624***
	(3.226)	(2.489)	(3.306)	(2.370)	(2.055)	(2.450)	(2.912)	(2.236)	(2.921)
Bond rating	0.3069**			0.2362			0.0647		
	(2.017)			(1.585)			(0.705)		
FCFSWA*Bond rating	-0.1063***			-0.0417**			-0.0531***		
	(-3.084)			(-2.049)			(-2.804)		
WW index		0.1246			0.0333			0.0627	
		(0.969)			(0.506)			(0.902)	
FCFSWA*WW index		-0.0632*			-0.0179			-0.0406**	
		(-1.931)			(-1.283)			(-2.109)	
Size_fc			1.8201***			0.8008***			0.6279***
			(5.361)			(4.719)			(3.452)
FCFSWA*Size_fc			-0.1301***			-0.0414**			-0.0641***
			(-3.234)			(-2.164)			(-2.941)
Qwa	0.6453	0.2201	0.5843	1.0073*	0.1844	0.3629	0.3504	0.0315	-0.0043
	(1.185)	(0.587)	(0.857)	(1.861)	(0.937)	(1.012)	(1.339)	(0.172)	(-0.011)
Size	0.0591	-0.0562	0.1248	-0.0133	-0.0257	0.0594	0.0359	0.0248	0.0812
	(0.738)	(-0.543)	(0.985)	(-0.200)	(-0.548)	(0.907)	(0.732)	(0.398)	(1.068)
Leverage	0.2128**	0.2012	0.3324**	0.0743	0.0325	0.0891*	0.1216**	0.1009	0.1332*
	(2.075)	(1.277)	(2.292)	(0.794)	(0.670)	(1.744)	(2.065)	(1.213)	(1.843)
Firm/year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	10,156	4,966	6,201	10,172	4,966	6,201	10,156	4,973	6,201
P-value of Hansen test	0.1189	0.1993	0.5006	0.7681	0.4672	0.2482	0.7992	0.3222	0.7517

Note: This table reports regression coefficients from the Two-Stage Least Squares regressions of CSA aggregate based measures with Tobin's Q as a proxy for future growth opportunities for the total sample of 17,362 firm-year observations (1991-2007). All variables are defined in the note to Table 2.1. Robust and clustered (by firm) t-Statistics are reported in parentheses. ***, **, * indicates significance at the 1%, 5% and 10% level, respectively.

Table 2.8 presents the results of the 2SLS regressions for the concerns-based measures: total CSA concerns score (CSA_CON), TCSA concerns score (TCSA_CON) and ICSA concerns score (TCSA_CON). The results obtained using firm and year fixed effects estimation and presented in Table 2.5 no longer hold. Almost all coefficients become insignificant and thus these results reject our hypothesis 3. This might be explained by the non-discretionary nature of CSA targeting concerns. Such non-discretionary activities should not depend on discretionary cash flows, especially for financially unconstrained firms.

Table 2.8: Two-Stage Least Squares regressions of CSA concerns based measures with Tobin's Q as a proxy for future growth opportunities

VARIABLES	CSA_CON			TCSA_CON			ICSA_CON		
FCFSWA	0.0229	0.0409	-0.0177	0.0086	0.0237	-0.0182	0.0141	0.0026	0.0081
	(1.013)	(1.010)	(-0.408)	(0.340)	(1.084)	(-0.487)	(1.560)	(0.249)	(0.805)
Bond rating	0.2270*			0.1821			0.0573		
	(1.649)			(1.015)			(1.153)		
FCFSWA*Bond rating	-0.0310			-0.0139			-0.0168*		
	(-1.319)			(-0.537)			(-1.896)		
WW index		0.5009*			0.2395**			0.0255	
		(1.906)			(2.174)			(0.681)	
FCFSWA*WW index		-0.0439			-0.0236			-0.0018	
		(-1.068)			(-1.080)			(-0.187)	
Size_fc			0.6423			0.3483			0.3729***
			(1.188)			(0.786)			(3.315)
FCFSWA*Size_fc			0.0277			0.0275			-0.0078
			(0.594)			(0.685)			(-0.756)
Qwa	-0.5410	-1.3136	-2.1500*	-1.1826	-0.4587	-1.9119*	0.2372	0.0632	-0.1278
	(-1.117)	(-1.325)	(-1.784)	(-1.442)	(-1.394)	(-1.867)	(1.579)	(0.603)	(-0.569)
Size	0.1856**	0.3700	0.4847**	0.1112	0.0576	0.2910	0.0604*	0.1162***	0.1343***
	(2.573)	(1.578)	(2.057)	(1.004)	(0.664)	(1.448)	(1.839)	(3.069)	(2.987)
Leverage	0.1777**	0.1557	0.2641	0.1005	0.1441	0.1920	0.0477	0.0301	0.0668*
	(2.243)	(0.968)	(1.294)	(0.947)	(1.510)	(1.107)	(1.473)	(0.796)	(1.769)
Firm/year dummies									
Industry dummies	-0.037	-1.018	-2.672	-1.504	0.005	-3.243	-0.231	0.087	0.012
	1,855	1,136	1,203	1,857	1,136	1,203	1,855	1,136	1,203
Observations	10,156	4,973	6,201	10,177	4,966	6,201	10,156	4,973	6,201
P-value of Hansen test	0.1578	0.7151	0.2101	0.1879	0.4250	0.2367	0.3131	0.8872	0.3252

Note: This table reports regression coefficients from the Two-Stage Least Squares regressions of CSA aggregate based measures with Tobin's Q as a proxy for future growth opportunities for the total sample of 17,362 firm-year observations (1991-2007). All variables are defined in the note to Table 2.1. Robust and clustered (by firm) t-Statistics are reported in parentheses. ***, **, * indicates significance at the 1%, 5% and 10% level, respectively.

2.5.3. Other robustness checks

We subject our baseline model to a specification change by adding lagged net sales to net plant, property and equipment at the beginning of the period to control for the impact of increasing demand that may not be fully reflected in Q and that may be otherwise captured by cash flows (as in Fazzari *et al.*, 1988; and Himmerlberg and Peterson, 1994). All the untabulated results of these regressions, support our earlier conclusions.[18]

2.6. Conclusion

We provide evidence that financial constraints negatively affect more discretionary and discretionary corporate social actions. Thus, the access to external financing along with the availability of internal funds affects the firm's CSR commitment.

For financially unconstrained firms, the sensitivity of more discretionary (total aggregated and secondary stakeholders) and discretionary corporate social actions (all strengths-based measures) to free cash flow is significant and positive. These results give strong support to the slack resources hypothesis.

For financially constrained firms, the net sensitivity of more discretionary (total aggregated and secondary stakeholders) and discretionary corporate social actions (all strengths-based measures) to free cash flow is lower in comparison to unconstrained firms. In addition, these results reveal that this net sensitivity is either positive or negative. For this group, social actions decrease even if liquidity increases possibly because these firms channel any available funds to more pressing and non discretionary needs. Hence, financial constraints cause firms at least to reduce their commitment in more discretionary CSA.

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[18] To isolate the net cash available for discretionary uses such as some CSR activities, we compute another measure of free cash flow. We define DFCF as the free cash flow (previously computed) minus the after tax interest expenses, minus cash dividends, plus the change in debt (long and short term), and plus the change in common stocks. For each year, the DFCF is scaled by net plant, property and equipment for the beginning of the period, winsorized at the 1st and 99th percentiles, and adjusted to the industry. Compared to FCF, we get weak results with DFCF.

While some results for constrained firms of CSA targeting concerns to free cash flows indicate a negative net sensitivity when firm and year fixed effects estimations are used, these results hold no longer when we control for the endogeneity of Tobin's Q,. This insignificant link might be explained by the non discretionary characteristic of corporate actions dealing with social concerns.

At least three limitations in our study could be used as potential extensions. First, although KLD data have many strengths, they have also some concerns regarding how CSR commitment is evaluated. It might be valuable to use other social data sources. Second, our sample consists of only US public firms and it would be interesting to extend the analysis to other contexts. Third, our model uses contemporaneous variables while the effect of financial constraints on social actions might require time to be revealed. Future research could use lagged independent variables to investigate such effect.

REFERENCES

Abel, A. and Eberly, J. (2001), "Investment and Q with fixed costs: An empirical analysis", mimeo, University of Pennsylvania, available at http://www.kellogg.northwestern.edu /faculty/eberly/htm/ Research/research.htm.

Allayannis, G. and Mozumdar, A. (2004), ''The impact of negative cash flow and influential observations on investment–cash flow sensitivity estimates'', *Journal of Banking and Finance,* 28 (5): 901–930.

Almeida, H. and Campello, M. (2007), ''Financial constraints, asset tangibility and corporate investment'', *Review of Financial Studies*, 20: 1429–1460.

Almeida, H., Campello, M. and Weisbach, M. (2004), ''The cash flow sensitivity of cash'', *Journal of Finance*, 59: 1777–1804.

Alti, A. (2003), "How sensitive is investment to cash flow when financing is frictionless" *The Journal of Finance*, 58(2): 707-722.

Bellone, F., Musso, P., Nesta, L. and Schiavo, S. (2008), ''Financial constraints and firm export behavior'', *The World Economy,* 33(3): 347-373.

Bird, R., Casavecchiaa, L. and Reggianib, F. (2006), ''Corporate social responsibility and corporate performance: Where to begin?'', Working paper, available at http://www.efmaefm.org/0EFMAMEETINGS/EFMA%20ANNUAL%20MEETINGS/2007-Vienna/Papers/0366.pdf.

Bird, R., Hall, A., Momente, F. and Reggiani, F. (2007), ''What corporate social responsibility activities are valued by the market?'', *Journal of Business Ethics*, 76: 189–206.

Bond, S., Harhof, D. and Van Reenen, J. (1999), ''Investment, R&D and financial constraints in Britain and Germany'', Working Paper No 99/5 Institute for Fiscal Studies.

Calem, P.S. and Rizzo, J.A. (1995), ''Financing constraints and investment: New evidence from hospital industry data'', *Journal of Money, Credit, and Banking*, 27(4): 1002-1014.

Calomiris, C.W., Himmelberg, C. P. and Wachtel, P. (1995), ''Commercial paper and corporate finance: A microeconomic perspective'', *Carnegie Rochester Conference Series on Public Policy*, 45: 203–250.

Carpenter, R. and Petersen, B. (2002), ''Is the growth of small firms constrained by internal finance?'', *Review of Economics and Statistics*, 84: 298–309.

Carpenter, R., Fazzari, S. and Petersen, B. (1994), ''Inventory (dis)investment, internal finance fluctuations, and the business cycle'', *Brookings Papers in Economic Activity*, 2: 75-138.

Carpenter, R., Fazzari, S. and Petersen, B. (1998), ''Financing constraints and inventory investment: A comparative study with high-frequency panel data'', *Review of Economics and Statistics*, 80: 513–519.

Cleary, S. (1999), ''The relationship between firm investment and financial status'', *Journal of Finance,* 54(2): 673–692.

Cleary, S., Povel, P. and Raith, M. (2007), ''The U-shaped investment curve: Theory and evidence'', *Journal of Financial and Quantitative Analysis,* 42(1): 1–40.

Cummins, J., Hasset, K. and Oliner, S. (2006), "Investment behaviour, observable expectations and internal funds", *American Economic Review,* 96(3): 796–810.

Devereux, M. P. and Schiantarelli, F. (1990), ''Investment, financial factors and cash flow: evidence from UK panel data'', in R. G. Hubbard (ed.), *Asymmetric Information, Corporate Finance, and Investment* (Chicago: University of Chicago Press, 1990), available at http://www.nber.org/chapters/c11476.

Erickson, T. and Whited, T.M. (2000), ''Measurement error and the relationship between investment and q'', *Journal of Political Economy,* 108(5): 1027–1057.

Fazzari, S., Hubbard, G. and Petersen, B. (1988), ''Financing constraints and corporate investment'', *Brookings Papers in Economic Activity*, 141–195.

Friedman, M. (1970), ''The Social Responsibility of business is to increase its profits'', *The New York Times Magazine*, September 13: 122–126.

Gilchrist, S. and Himmelberg, C.P. (1995), ''Evidence of the role of cash flow in investment'', *Journal of Monetary Economics*, 36: 541–572.

Godfrey, P.C., Merrill, C.B. and Hansen J.M., (2009), ''The relationship between corporate social responsibility and shareholder value: an empirical test of the risk management Hypothesis'', *Strategic Management Journal,* 30: 425–445.

Gomes, J. (2001), "Financing Investment," *American Economic Review,* 91: 1263-85.

Griffin, J.J. and Mahon, J.F. (1997), "The corporate social performance and corporate financial performance debate'', *Business and Society,* 36 (1): 5–31.

Guariglia, A. (1999), ''The effects of financial constraints on inventory investment: Evidence from a panel of UK firms'', *Economica*, 66: 43–62.

Guariglia, A. (2000), ''Inventory investment and capital market imperfections: A generalization of the linear quadratic inventory model'', *Oxford Bulletin of Economics and Statistics,* 62: 223–242.

Guariglia, A. (2008), ''Internal financial constraints, external financial constraints, and investment choice: Evidence from a panel of UK firms'', *Journal of Banking & Finance,* 32: 1795–1809.

Hahn, J. and Lee, H. (2009), ''Financial constraints, debt capacity, and the cross-section of stock returns'', *The Journal of Finance*, 64(2): 891-921.

Hoshi, T., Kashyap, A. and Scharfstein, D. (1991), ''Corporate structure, liquidity and investment: Evidence from Japanese industrial groups'', *Quarterly Journal of Economics,* 106: 33–60

Houston, J.F., and James, C.M. (2001), ''Do relationships have limits? Banking relationships, financial constraints, and investment'', *Journal of Business,* 74: 347-373.

Hovakimian, A. and Hovakimian, G. (2009), ''Cash flow sensitivity of investement'', *European Financial Management,* 15(1): 47-65.

Hubbard, R. G., (1998), ''Capital market imperfections and investment'', *Journal of Economic Literature,* 36: 193–225.

Kaplan, S. and Zingales, L. (1997), ''Do investment–cash flow sensitivities provide useful measures of financing constraints?'', *Quarterly Journal of Economics,* 112: 169–215.

Kashyap, A.K., Lamont, O.A. and Stein, J.C. (1994), ''Credit conditions and the cyclical behavior of inventories'', *Quarterly Journal of Economics,* 109: 565–592.

Lamont, O., Polk, C. and Saa-Requejo, J. (2001), ''Financial Constraints and Stock Returns'', *Review of Financial Studies*, 14: 529-554.

M'Zali B., Charest, G., Turcotte, M.F, Gueyié, J.P. and Bouslah, K. (2004), ''Cote ou décote indiciaire sociale et sort boursier'', *FINÉCO,* 14 : 59-88.

Margolis, J., Elfenbein, H., and Walsh, J. (2007), ''Does it pay to be good? A meta-analysis and redirection of research on the relationship between corporate social and financial performance'', Working Paper, available at http://stakeholder.bu.edu/2007/Docs/Walsh,%20Jim%20Does%20It%20Pay%20to%20Be%20Good.pdf.

Mattingly, J.E. and Berman S. (2006), "Measurement of corporate social action: discovering taxonomy in the Kinder Lydenburg Domini ratings data'', *Business and Society,* 45(1): 20–46.

Mitchell, R.K., Agle, B.R. and Wood, D.J. (1997), "Toward a theory of stakeholder identification and salience: defining the principle of who and what really counts'', *Academy of Management Review,* 22(4): 853–886.

Mitnick, B. M. (2000), "Commitment, revelation, and the testaments of belief: The metrics of measurement of corporate social performance'', *Business and Society,* 39: 419-465.

Modigliani, F. and Miller, H.M. (1958), ''The cost of capital, corporation finance and the theory of investment'', *The American Economic Review,* 48(3): 261-297.

Moyen, N. (2004), "Investment–cash flow sensitivities: Constrained versus unconstrained firms'', *Journal of Finance,* 59: 2061–2092.

Myers, S. and Majluf, N.S. (1984), ''Corporate financing and investment decisions when firms have information that investors do not have'', *Journal of Financial Economics*, 13(2): 187-221.

Nickell, S. and Nicolitsas, D. (1999), "How does financial pressure affect firms?'', *European Economic Review,* 43: 1435–1456.

Orlitzky, M. Schmidt, F. L. and Rynes, S. L. (2003), ''Corporate social and financial performance: A meta-analysis'', *Organization Studies*, 24(3): 403–441.

Preston, L. E. and O'Bannon, D. P. (1997), "The corporate social–financial performance relationship: A typology and analysis'', *Business and Society,* 36: 419–429.

Rehbein, K., Waddock, S., and Graves, S. (2004), ''Understanding shareholder activism: Which corporations are targeted?'', *Business and Society,* 43(3): 239-267.

Schaller, H. (1993), ''Asymmetric information, liquidity constraints, and Canadian investment'', *Canadian Journal of Economics,* 26: 552–574.

Seifert, B., Morris, S.A. and Bartkus, B.R. (2003), ''Comparing big givers and small givers: financial correlates of corporate philanthropy'', *Journal of Business Ethics*, 45(3): 195–211.

Seifert, B., Morris, S.A. and Bartkus, B.R. (2004), ''Having, giving, and getting: slack resources, corporate philanthropy, and firm financial performance'', *Business and Society,* 43(2): 135–161.

Sharpe, S.A. (1994), "Financial market imperfections, firm leverage, and the cyclicality of employment'', *The American Economic Review,* 84(4): 1060-1074.

Shin, H. and Kim, Y. (2002), ''Agency costs and efficiency of business capital investment: evidence from quarterly capital expenditures'', *Journal of Corporate Finance,* 8: 139–58.

Shin, H. and Park, Y. (1998), ''Financing constraints and internal capital markets: Evidence from Korean Chaebols'', Working paper, California Polytechnic State University.

Spariala, M.E. (2009), ''Do financial factors affect the capital-labour ratio? Evidence from UK firm-level data'', *Journal of Banking and Finance,* 33: 1932-1947.

Waddock, S. A. and Graves, S. B. (1997), "The corporate social performance financial performance link'', *Strategic Management Journal,* 18(4): 303-319.

Wang, R. (2006), "Executive Incentives and Financial Constraints'', Working paper.

Whited, T. and Wu, G. (2006), ''Financial constraints risk'', *Review of Financial Studies,* 19: 531–559.

Whited, Toni M. (1992), ''Debt, liquidity constraints, and corporate investment: Evidence from panel data'', *Journal of Finance,* 47: 1425–1460.

CHAPITRE III

ARTICLE 3

FIRM VALUE, CORPORATE SOCIAL ACTIONS AND FINANCING CONSTRAINTS

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FIRM VALUE, CORPORATE SOCIAL ACTIONS AND FINANCING CONSTRAINTS

Abstract

This study examines how financial constraints impact the link between a firm's market value and its social involvement. To assess this effect, we distinguish between financially constrained versus unconstrained firms, discretionary versus non-discretionary social actions and primary versus secondary stakeholders and we argue that social activities are more valuable for constrained firms. We rely for our analyses on a sample of 17 362 U.S firm-year observations from the 1991-2007 time period.

Our findings reveal that corporate social actions might be either value reducing or protecting. When the firm is financially constrained, we found that the reducing effect of discretionary social activities is tempered, while the protecting effect of those that are non-discretionary is enhanced.

Keywords: Firm value, corporate social actions, financial constraints.

3.1 Introduction

Corporate social awareness and commitment are becoming increasingly important for companies even though there is no consensus whether their investments in socially responsible activities are value enhancing, destroying or irrelevant. This significant corporate trend emerges under various pressures from shareholders, analysts, regulators, activists, labour unions, employees, community organisations and the media that ask corporations to be accountable for various diverse issues (Tsoutsoura, 2004).

The relevance of firm's social commitment is still questioned theoretically and has mixed empirical support. Nevertheless, several studies indicate that better firm value is associated with better social performance. In this essay, we extend the current literature by considering the impact of corporate social commitment on firm's market value given its access to external financing. Specifically, we examine how a firm's market value is affected by its social engagement in the presence of financing constraints using an unbalanced dataset of 17 362 firm-year observations from 1991 to 2007. We argue that corporate social actions are more valuable when the firm is financially constrained.

We employ a model where Tobin's Q is linked to corporate social actions given the financing constraints of the firm. The model is estimated using firm fixed effects and GMM. To test our hypotheses, we differentiate between financially constrained versus unconstrained firms, discretionary versus non-discretionary social actions and primary versus secondary stakeholders. The findings reveal that corporate social actions might be either value reducing or protecting. In particular, we found evidence that strengths and concerns actions aimed to affect respectively primary and secondary stakeholders are more valuable for financially constrained than for unconstrained firms

Thus, our study extends the existing literature on corporate social responsibility by giving evidence that some corporate social actions are more valuable for financially constrained than for unconstrained firms. Our analysis also contributes to this literature by showing the importance of the disaggregation both to social strengths and concerns and to those targeting

primary and secondary stakeholders when assessing the causal link between social responsibility and market value.

The remainder of this essay is organised as follows. A review of the related literature and a development of the testable hypotheses are presented in the next section. Section three describes our data sample and defines our variables and econometric model. Section four presents, analyses and discusses our findings. We report and interpret the results of different robustness checks in section five, before drawing the conclusions and implications from this study in the sixth and final section.

3.2. Review of the literature

3.2.1. Corporate social responsibility and firm value

The debate about whether investments in social activities have wealth effects is ongoing, and is grouped into three theoretical streams herein.

The first stream considers that firm's social involvement is value destroying. According to Friedman (1970), the duty of the corporations is to serve the interests of their owners and have not to address CSR concerns which are better handled by government. Consequently, any discretionary expenditure on social activities should impair firm competitiveness and thereby reduces its market value with respect to its competitors.

Empirically, different studies give support to this theoretical stream. For instance, Brammer *et al.* (2006) investigate the relationship between corporate social and financial performances (CSP and CFP respectively) using stock returns, for a sample of UK quoted companies. Their findings show that firms with higher social performance scores tend to achieve lower returns, while firms with the lowest possible CSP scores of zero considerably outperform the market. Also, Boyle *et al.* (1997) work analyzes how stock holders perceive the effects of CSR on firm value. They use an investor decision framework to measure the stock market's reaction to an ethical initiative (Defense Industries Initiative (DII) made by

major US defense contractors). Their results indicate that the market reacted negatively to both the signers and non-signers of this initiative.

The second theoretical stream argues that corporations have broader responsibilities towards non-shareholder stakeholders and towards society as a whole (Freeman, 1984). The more a firm succeeds in fulfilling the social expectations, the more it will enhance its stakeholders' satisfaction and thereby should gain different benefits which in turn could lead to better financial performance. These benefits include an enhancement in a firm's reputation (Fombrun and Shanley, 1990; Fombrun, 2005; Freeman *et al.*, 2007), better access to valuable resources (Cochran and Wood, 1984; Waddock and Graves, 1997), improved marketing of the firm's products and services (Moskowitz, 1972; Fombrun, 1996), and the increased attractiveness of the firm to potential and talented employees (Turban and Greening, 1996; Greening and Turban, 2000), to socially conscious consumers (Hillman and Keim, 2001) and to socially responsible investors (Kapstein, 2001).

Although, the vast empirical literature on the link between firm financial performance and its social involvement has yielded mixed results, different meta-analyses show that generally firm value is associated with better social performance, and inversely that poor firm value is linked to weak social commitment. Among these, Margolis and Walsh (2003) meta-analysis which examines 122 studies published between 1971 and 2001, and identifies 51, 7 and 20 with a positive, negative and mixed relation, respectively. Orlitzky *et al.* (2003) criticise this study for its simple ''vote counting'' methodology, and its absence of adjustments for sampling and measurement errors. After correcting for these deficiencies, Orlitzky *et al.* (2003) conclude that social performance is value enhancing.

The third and final stream of the literature suggests that social initiatives generate positive reputation and subsequently positive moral capital or goodwill that offers insurance-like protection when negative events occur (Godfrey *et al.*, 2005; Godfrey *et al.*, 2009). According to this strand, CSR commitments protect rather than create financial value for the firm. In support of this position, Epstein and Schneitz (2002) find that firms with a reputation for social responsibility, as indicated by their inclusion in the KLD Domini Social Index, suffered less loss as a result of the failure of the 1999 Seattle World Trade Organization

meetings. In another event study, Godfrey *et al.* (2009) find that participation in institutional CSR activities that are aimed at a firm's secondary stakeholders or society at large provide insurance-like protection.

3.2.2. Financial constraints, corporate social actions and firm value

A firm's growth and profitability depend on its adoption of value-increasing projects. Depending on their severity, impediments to undertake such investments will have differential effects on a firm's potential to achieve better financial performance. An important impediment is firm's access to capital markets that has been investigated in the corporate finance literature in a different context.[19]

Modigliani and Miller (1958) show that a firm's capital structure is irrelevant to its value in perfect capital markets. This implies that, since external and internal finance are perfect substitutes, firm's investment and financing decisions are independent of each other. However, external sources of finance become costly in the presence of market imperfections, such as taxes, transaction costs and information asymmetries. Therefore, a firm's investment might be constrained by the availability of limited internal liquidity. An important strand of the literature started by Fazzari *et al.* (1988) uses this intuition of investment-internal liquidity sensitivity as a proxy for ''financial constraints''.[20]

Firms will try to alleviate any financial constraints in order to protect and even to enhance their market values. Involvements in CSR activities might be an important way to achieve such goals. Based on the third stream of the literature that we discussed earlier, we could expect a value protecting effect of CSR commitment when the firm is financially constrained.

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[19] While Lamont *et al.* (2001) report that more constrained firms earn lower average returns than less constrained firms, Whited and Wu (2006) find an insignificant result. Carpenter and Peterson (2002) find that financially unconstrained firms exhibit higher growth rates of assets compared to financially constrained firms.

[20] Financial constraints refer to ''frictions that prevent the firm from funding all desired investments. This inability to fund investment might be due to credit constraints or inability to borrow, inability to issue equity, dependence on bank loans, or illiquidity of assets'' (Lamont *et al.*, 2001).

In line with this expectation, Chen *et al.* (2010) show that external financing needs strengthen the positive influence of the quality of corporate governance practices on firm market value.[21]

Since corporate governance practices are a part of CSR activities,[22] we propose herein to extend Chen *et al.* (2010) work by exploring the effect of financial constraints on the relationship between firm's social commitment and its market value. Our main expectation is that corporate social actions are more valuable for financially constrained firms. We develop our hypotheses in the next section.

3.3. Data, variables, hypotheses and methodology

3.3.1. Data

We use the Kinder, Lydenberg, Domini & Co. (KLD) Socrates database for 1991-2007 period of time to obtain our corporate social actions measures. We combine this with corresponding corporate financial and market variables obtained from COMPUSTAT, CRSP and IBES. After excluding financial (SIC codes 6000-6999) and utilities (SIC codes 4900-4999) firms, our final sample consists of 17,362 firm-year observations.

3.3.2 Corporate social actions (CSA)[23]

On an annual basis, KLD rates firms on seven dimensions representing qualitative screens of social responsibility, including community, diversity, employee relations,

[21] Their reasoning depends on two main incentives that might encourage the firm with external financing needs (i.e. likely to be financially constrained) to enhance its governance policy. First, better corporate governance is likely to provide a signal to investors of reduced information asymmetry, and reduced agency costs between managers and shareholders, and hence, greater shareholder value. Second, the equities of firms with good corporate governance are likely to have relatively better market liquidity, which, in turn, can lower the cost of capital for these firms.

[22] The UN has launched the principles for Responsible Investments (PRI) in April 2006 with a view to promoting "Environmental, Social and Corporate Governance Considerations" in the investment decision-making of the global financial world. See: www.unpri.org

[23] We follow Mattingly and Berman (2006) and Mitnick (2000) in using KLD data as indicators of a firm's social actions rather than consequences or outcomes of actions (corporate social performance).

environment, product, human rights and corporate governance. For each of these dimensions, there are a number of criteria measuring a firm's strengths and concerns. A score of "1" is assigned to the firm when it demonstrates strength (has concern) for an indicator of a social dimension and zero otherwise. Also, KLD has six exclusionary screens (alcohol, gambling, military, nuclear power, firearm and tobacco) that we do not consider for our study since they have only concern ratings and no strength ratings and since they reflect the firm membership in specific industrial sectors.

For the purposes of this study and given the lack of consensus in the literature on how to weight the different KLD dimensions to produce reliable social measures, we use one total aggregation (CSA_TOT), and two disaggregations. For each company and each year we calculate the company's score CSA_TOT as the difference between the total strengths (CSA_STR) and the total concerns (CSA_CON). Our first disaggregation distinguishes between social strengths and concerns (respectively CSA_STR and CSA_CON). According to Mattingly and Berman (2006), KLD strengths and concerns are not opposite sides of the same social dimensions and thereby should not be gathered in a same measure. In addition, such disaggregation is intuitive since CSA concerns can be seen as minimum community and legal requirements that need to be met by firms (i.e., non-discretionary actions), while CSA strengths can be seen as CSA beyond this minimum (i.e., voluntary and discretionary actions) (Bird *et al.*, 2007).

As a second disaggregation, we adopt the four distinct latent constructs in the KLD data identified by Mattingly and Berman (2006); namely, primary stakeholders (also called technical) social actions strengths and concerns (TCSA_STR and TCSA_CON), secondary stakeholders (called institutional) social actions strengths and concerns (ICSA_STR and ICSA_CON).[24] By considering both the separation of strengths from concerns and primary from secondary stakeholders, these measures enable us to relatively compare more and less discretionary social actions.

[24] Primary stakeholders are those who are essential to the operation of the business and have both urgency and the power to enforce their claims. Secondary stakeholders have legitimate claims on the firm and can influence the firm's primary stakeholders although they lack both the urgency and power to enforce these claims (Michell *et al.*, 1997).

3.3.3. Financial constraints

To assess the effects of financial constraints on the link between the social commitment of a firm and its market value, we classify each firm in our sample as being financially constrained or unconstrained. Since the literature does not suggest the best method for doing so, we rely on four different classifiers: payout ratio, bond rating, Whited and Wu index, and firm size. For each of these indicators, a dummy variable is created with a value of one if the firm is financially constrained and zero otherwise (i.e. financially unconstrained).

According to Fazzari *et al.* (1988), firms are financially constrained when they have significantly lower payout ratios. We follow Hahn and Lee (2009) in defining payout ratio (PR) as the total of distributions (dividends plus stock repurchases) to net income. For each sample year, firms are ranked based on their PR, and the bottom (top) three deciles of the sample firms are classified as financially constrained (unconstrained). Firms with zero payouts or negative net income are excluded from this ranking procedure but are subsequently added to the constrained sample. Hence, the constrained subsample accounts for more than 30% of the sample firms in a given year.

Whited (1992) and Kashyap *et al.* (1994) use the existence of a bond rating as an empirical measure of whether firms are financially constrained. Following Hahn and Lee (2009), we classify those firms with positive debt but without a Standard & Poor's (S&P) bond rating in a given year as financially constrained.

We compute the Whited and Wu index (2006) as:

$$WW\ Index = -0.091CF - 0.062DIVPOS + 0.021TLTD - 0.044LNTA + 0.102ISG - 0.035SG,$$

Where CF is the ratio of cash and short-term investments to total assets; DIVPOS is an indicator that takes the value of one if the firm pays cash dividends and is zero otherwise; TLTD is the ratio of the long-term debt to total assets; LNTA is the natural log of total assets; ISG is the sales growth for the firm's industry (48 Fama and French categories herein); and SG is the firm's sales growth. Firms are sorted yearly in ascending order by their WW index. Firms with WW index values higher (lower) or equal to the 70^{th} (30^{th}) percentile are considered as financially (un)constrained.

We follow Almeida *et al.* (2007), Gilchrist and Himmelberg (1995) and Erickson and Whited (2000), among others, in using firm size as a measure of being financially constrained. In every sample year, we rank firms based on the logarithm of their total assets. We assign firms to the financially constrained (unconstrained) group if they are in the bottom (top) three deciles of the annual asset size distribution.

3.3.4. Firm value

We follow Fahlenbrach and Stulz (2009) in using Tobin's Q as a proxy for firm value and define it as the ratio of the market value of assets to the book value of assets. The market value of assets is the sum of the book value of assets and the market value of common stock less the book value of common stock and deferred taxes. Compared to stock returns and accounting measures, Tobin's Q has the advantage that no risk adjustment or standardization is needed before making comparisons across firms (Lang and Stulz, 1994).

3.3.5. Hypotheses

Based on the CSR literature, firm's social involvement might be value enhancing, reducing or protecting. We argue that such commitment should be more valuable for financially constrained than for unconstrained firms. In particular, discretionary CSA

(CSA_TOT and CSA strengths based measures) are expected to be either value increasing or decreasing. If they are value increasing (decreasing), we expect their effect to be more (less) pronounced for financially constrained firms. Therefore, our first hypothesis is as follows:

> **Hypothesis 1**: Discretionary CSA are value increasing (decreasing) and their effect is more (less) pronounced for financially constrained firms.

Since as we noted earlier, corporate actions targeting social concerns are non-discretionary, we expect them to be firm value protecting, and we also expect this effect to be more pronounced for financially constrained than for their unconstrained counterparts. Thus, our second hypothesis is:

> **Hypothesis 2**: Firm value sensitivity to social concerns (CSA_CON) scores is negative and more pronounced for financially constrained than for unconstrained firms.

3.3.6. Model specification

To test whether financial constraints affect the relation between a firm's market value and a firm's social actions, we follow the previous literature and also add controls for firm size, risk, profitability and S&P membership to our model to obtain:

$$\begin{aligned} Q_{i,t} = {} & \beta_0 + \beta_1 CSA^{j}_{i,t} + \beta_2 FC_{i,t} + \beta_3 FC_{i,t} * CSA^{j}_{i,t} + \beta_4 ROA_{i,t} \\ & + \beta_5 LEVERAGE_{i,t} + \beta_6 SP500_{i,t} + \beta_7 SIZE_{i,t} + \sum_i Firm_i + \varepsilon_{i,t} \end{aligned} \quad (1)$$

Where

$Q_{i,t}$ is the industry-mean adjusted Tobin's Q for firm i in year t.[25]

[25] For each year, using the whole sample of COMPUSTAT data, we compute Tobin's Q for each firm and for each industry ($Q_{ind,t}$) based on the Fama-French 48 industry classifications. Industry-mean adjusted is then firm (Q_{it}) minus its respective industry $Q_{ind,t}$.

$CSA_{i,t}^{j}$ is the j-th dummy variable for respectively the CSA measures for the following cases: Aggregate CSA score (CSA_TOT); CSA total strengths (CSA_STR) and CSA total concerns (CSA_CON); Technical and institutional CSA total strengths (TCSA_STR and ICSA_STR) and Technical and institutional CSA total concerns (TCSA_CON and ICSA_CON).

$FC_{i,t}$ is one of the four financial constraint proxies defined in the section 3.3.

$ROA_{i,t}$ is the proxy for firm profitability for the firm *i* at year *t* to account for likelihood that more profitable firms have higher market values, which is measured as earnings before interest and taxes on lagged total assets.

$LEVERAGE_{i,t}$ is the ratio of the long-term debt on market equity of firm *i* for the year *t* to account for the differences in capital structures across the firms in the sample (Allayannis and Weston, 2001; Palia, 2001).

$SP\_500_{i,t}$ is a dummy variable which is equal to 1 if firm *i* is included in the S&P 500 index and is zero otherwise to account for the finding that that inclusion within the S&P 500 index has a positive effect on firm value (Morck and Yang, 2001).

$SIZE_{i,t}$ is the natural logarithm of the market value of equity of firm *i* for the year *t*, which previous research finds is negatively related to firm value (McConnel and Servaes, 1990; Smith and Watts, 1992).

$Firm_i$ is a dummy variable for firm *i* that controls for its fixed effects.

$\varepsilon_{i,t}$ is the error term.

Q, ROA, and LEVERAGE are winsorized at the 1st and 99th percentiles.

To identify the effect of CSA on market value when the firm is financially constrained, our interest is centered on coefficient β_3 of the interaction term between the financing constraint dummy and CSA measures in equation (1). If β_3 is significant and positive (negative), then the impact of the CSA variables (CSA_TOT and all strengths based measures) on $Q_{i,t}$ is higher (lower) for financially constrained firms. If β_3 is significant and negative, then the impact of all concerns based measures on $Q_{i,t}$ is more pronounced for financially constrained firms.

3.4. Empirical findings

3.4.1. Descriptive statistics

Table 3.1 presents correlation coefficients of corporate social actions measures, certain firm characteristics and financial constraints proxies. The total aggregated measure CSA_TOT and all the strengths based measures are significantly and positively correlated to Tobin's *Q*. Less corporate engagement in dealing with potential concerns, reflected in high concerns based measures, is significantly and negatively correlated to Tobin's *Q*. Together these correlations indicate a possible positive effect of corporate social actions on a firm's market value.[26]

[26] Concerns based scores indicate inactions rather than actions. So a negative correlation might indicate a destructive impact of such inaction on a firm's value. Since we are interested in corporate social actions, those that deal with concerns will decrease concerns based scores which might protect against the loss of value and subsequently we consider that as a positive effect.

Table 3.1: Correlations between the main variables

	Q	CSA_TOT	CSA_STR	CSA_CON	TCSA_STR	ICSA_STR	TCSA_CON	ICSA_CON	PR	WW	Size_fc	BR	Size	ROA
CSA_TOT	0.130***	1.000												
CSA_STR	0.079***	0.590***	1.000											
CSA_CON	-0.072***	-0.563***	0.334***	1.000										
TCSA_STR	0.097***	0.477***	0.730***	0.191***	1.000									
ICSA_STR	0.054***	0.501***	0.860***	0.295***	0.348***	1.000								
TCSA_CON	-0.070***	-0.514***	0.248***	0.853***	0.121***	0.256***	1.000							
ICSA_CON	-0.053***	-0.364***	0.279***	0.710***	0.204***	0.182***	0.315***	1.000						
PR	-0.071***	-0.098***	-0.222***	-0.115***	-0.101***	-0.225***	-0.058***	-0.130***	1.000					
WW	0.024***	0.076***	-0.220***	-0.312***	-0.100***	-0.217***	-0.252***	-0.212***	0.094***	1.000				
Size_fc	0.155***	0.162***	-0.242***	-0.431***	-0.077***	-0.266***	-0.352***	-0.328***	0.213***	0.643***	1.000			
BR	0.053***	0.073***	-0.228***	-0.318***	-0.087***	-0.224***	-0.207***	-0.295***	0.138***	0.379***	0.714***	1.000		
Size	0.218***	0.007	0.458***	0.460***	0.262***	0.448***	0.355***	0.355***	-0.282***	-0.442***	-0.723***	-0.518***	1.000	
ROA	0.377***	0.086***	0.077***	-0.021**	0.071***	0.073***	-0.043***	-0.005	-0.195***	-0.003	-0.120***	-0.060***	0.310***	1.000
SP_500	0.163***	0.026***	0.381***	0.359***	0.242***	0.344***	0.227***	0.322***	-0.272***	-0.330***	-0.493***	-0.493***	0.652***	0.134***
Leverage	-0.180***	-0.128***	-0.024***	0.124***	-0.054***	-0.015**	0.103***	0.115***	0.085***	-0.150***	-0.290***	-0.302***	-0.100***	-0.184***

Note: This table provides correlation coefficients between our variables for our sample of 17,362 firm-year observations (1991-2007). CSA stands for Corporate Social Actions.
Q is the ratio of the market value of assets to the book value of assets. The market value of assets is the sum of the book value of assets and the market value of common stock less the book value of common stock and deferred taxes. Q has been winsorized at the 1st and 99th percentiles. CSA_TOT: the total aggregated CSA is the sum of strengths minus sum of concerns; CSA_STR: the aggregated CSA strengths (sum of strengths); CSA_CON: the aggregated CSA concerns (sum of concerns); TCSA_STR: the technical CSA strengths is the sum of technical strengths; ICSA_STR: the institutional CSA strengths is the sum of institutional strengths; TCSA_CON: the technical CSA concerns is the sum of technical concerns; ICSA_CON: the institutional CSA concerns is the sum of institutional concerns; PR (payout ratio) is the ratio of total distributions (dividends plus stock repurchases) to net income. In each year during the sample period, we rank firms based on PR, and classify the bottom (top) three deciles of the sample firms as financially constrained (unconstrained). We exclude firms with zero payouts or negative net income. The constrained sample is then the firms in the bottom three deciles of payout ranking plus the firms with zero payouts or negative net income; BR (Bond rating): we consider firms with positive debt but without a Standard & Poor's (S&P) bond rating in a given year as financially constrained. Financially unconstrained firms are those with positive debt and an S&P bond rating in a given year during the sample period. WW (Whited and Wu index): Firms are sorted yearly in ascending order of index levels. Then firms with levels higher (less) or equal to the (30^{th}) 70^{th} percentile are classified as financially (un)constrained. Size_fc: In every year over the 1991–2007 period we rank firms based on the logarithm of their total assets and assign to the financially constrained (unconstrained) group those firms in the bottom (top) three deciles of the annual asset size distribution; ROA: Return on Assets which is the ratio of income Before Extraordinary Items on lagged total assets; SP_500 is a dummy variable which is equal to '1' if firm is included in the S&P 500 index and '0' otherwise; Leverage is the ratio of the long term debt on market equity; Size is measured as the natural logarithm of the market value of equity; ***, **, * indicate significance at the 1%, 5% and 10% level, respectively.

Also, Table 3.1 indicates that the correlation of technical social actions scores (TCSA_STR and TCSA_CON) to Tobin's Q are respectively 0.097 and – 0.07 and are more pronounced than those of institutional social actions scores (ICSA_STR and ICSA_CON) respectively with 0.054 and -0.053. These results might reflect a differential effect of technical social actions on firm market value as compared to institutional social actions, and therefore emphasize the potential importance of such disaggregation for our study.

Firm size, profitability and S&P membership (Leverage) are (is) significantly and positively (negatively) correlated with firm market value. The four financial constraints variables (Payout ratio, bond rating, Whited and Wu index and Size) are significantly and positively correlated at the 1% level with correlations ranging from 0.094 to 0.714. Since each measure appears to capture some unique information, it is useful to employ them to strengthen our results.

Overall these correlations suggest a potential positive effect of a firm's social engagement on its market value, and show certain heterogeneity in social actions scores as well as in financing constraints proxies which might affect the relationship between firm social commitment and its market value.

3.4.2. Regression results

The results of firm fixed effects regression analyses examining the effect of firm access to external financing on the link between corporate social actions, measured by the total aggregated score CSA_TOT, and firm market value are presented in Table 3.2. In column 2, we report the estimation results when the regression is performed on the whole sample including financially constrained and unconstrained firms. These results show no effect of CSA_TOT on Tobin's Q. However, the results reported in columns 3 through 6 are different when the financing constraint variable (measured successively by the payout ratio, bond rating, Whited and Wu index and firm size) is included in the analysis. These results show that for financially unconstrained firms CSA_TOT has no impact on Tobin's Q for the four financing constraint proxies used since coefficient β_1 is insignificant. When payout ratio and Whited and Wu index (Bond rating and size) are used, β_3 which is the incremental effect of CSA_TOT for financially constrained firms over their unconstrained counterparts is significant and positive (insignificant).

Table 3.2: Firm fixed effects regressions of total aggregated CSA measure

		Financial constraint proxy (FC_Proxy)			
VARIABLES		**PR**	**BR**	**WW**	**Size_fc**
CSA_TOT	0.0046	-0.0060	0.0054	-0.0179	-0.0104
	(0.429)	(-0.433)	(0.466)	(-1.371)	(-0.781)
FC_Proxy		0.1665***	0.4825***	0.3180***	1.0378***
		(5.365)	(6.069)	(9.788)	(10.680)
FC_Proxy *CSA_TOT		0.0284**	-0.0048	0.0411***	0.0427
		(2.275)	(-0.217)	(3.119)	(1.609)
Size	0.0818**	0.1609***	0.1157***	0.0884**	0.3024***
	(2.191)	(4.009)	(3.047)	(2.142)	(6.692)
ROA	4.6897***	4.3077***	4.5815***	4.4832***	3.9743***
	(13.059)	(10.997)	(12.879)	(11.159)	(10.264)
SP_500	0.1868**	0.1624*	0.1772**	0.1245	0.0698
	(2.393)	(1.939)	(2.297)	(1.259)	(0.805)
Leverage	-0.1506***	-0.0963***	-0.1092***	-0.1342***	-0.0087
	(-4.038)	(-2.659)	(-2.849)	(-3.011)	(-0.182)
Constant	-1.8824***	-2.5161***	-2.3535***	-2.0805***	-3.8927***
	(-6.744)	(-8.439)	(-8.079)	(-6.477)	(-10.749)
Observations	13,677	10,848	13,677	9,650	9,610
R-squared	0.150	0.155	0.161	0.157	0.193

Note: This table reports coefficients from the firm fixed effects regressions by financial constraints for our sample of 17,362 firm-year observations (1991-2007). All variables are defined in the note to Table 3.1. Robust and clustered (by firm) t-statistics are reported in parentheses. ***, **, * indicate significance at the 1%, 5% and 10% level, respectively.

On the one hand, these findings show the usefulness of the distinction between financially constrained and unconstrained firms. On the other hand, they reveal that while CSA_TOT is value irrelevant for unconstrained companies, it is value enhancing for their constrained counterparts.

Instead of using the aggregate CSA_TOT for our analysis, we turn now to employ CSA_STR and CSA_CON separately. In the second column of Table 3.3, the reported regression coefficients are those obtained by the estimation performed for the whole sample. As expected in our first (second) hypothesis, CSA_STR (CSA_CON) scores negatively affect the market value of the firm.

In columns 3 to 6 of Table 3.3, the regression model contains the financing constraint variable and its interactions with the CSA_STR and CSA_CON scores. The findings for financially unconstrained firms are similar to those obtained for the whole sample. For CSA_STR actions, the incremental impact for financially constrained firms is significant and positive for two of the four proxies of financing constraints, in support of our first hypothesis, but is insignificant for the two others. The net effect of CSA_STR scores on Tobin's Q for the constrained group is negative (positive) when payout ratio (size) is used as the financing constraint measure.

Table 3.3: Firm fixed effects regressions of total strengths and concerns CSA measures

		Financial constraint proxy (FC_Proxy)			
VARIABLES		**PR**	**BR**	**WW**	**Size_fc**
CSA_STR	-0.0879***	-0.0979***	-0.0940***	-0.0986***	-0.1102***
	(-7.437)	(-6.350)	(-7.992)	(-7.245)	(-8.031)
CSA_CON	-0.0969***	-0.1001***	-0.1061***	-0.0717***	-0.0950***
	(-8.662)	(-7.185)	(-9.011)	(-5.124)	(-7.426)
FC_Proxy		0.0839**	0.3175***	0.4304***	0.8476***
		(2.148)	(3.665)	(9.737)	(8.308)
FC_Proxy *CSA_STR		0.0275*	0.0429	0.0083	0.1157***
		(1.846)	(1.321)	(0.567)	(3.189)
FC_Proxy *CSA_CON		-0.0024	0.0584**	-0.0641***	0.0492*
		(-0.193)	(2.513)	(-4.819)	(1.709)
Sise	0.2123***	0.2760***	0.2495***	0.2376***	0.4673***
	(5.450)	(6.762)	(6.358)	(5.372)	(10.337)
ROA	4.2204***	3.8709***	4.1087***	3.9609***	3.3701***
	(12.367)	(10.241)	(12.082)	(10.507)	(9.649)
SP_500	0.1838**	0.1544*	0.1732**	0.1285	0.0766
	(2.364)	(1.856)	(2.235)	(1.301)	(0.882)
Leverage	-0.0581	-0.0189	-0.0162	-0.0257	0.1122**
	(-1.583)	(-0.524)	(-0.433)	(-0.579)	(2.445)
Constant	-2.5067***	-2.9741***	-2.9578***	-2.8843***	-4.7237***
	(-8.810)	(-10.091)	(-10.098)	(-8.690)	(-13.460)
Observations	13,677	10,848	13,677	9,650	9,610
R-squared	0.190	0.191	0.203	0.205	0.247

Note: This table reports coefficients from the firm fixed effects regressions by financial constraints for our sample of 17,362 firm-year observations (1991-2007). All variables are defined in the note to Table 3.1. Robust and clustered (by firm) t-statistics are reported in parentheses. ***, **, * indicate significance at the 1%, 5% and 10% level, respectively.

The significance and the sign of the incremental impact for financially constrained firms are mixed for CSA_CON scores. Although the total effect of CSA_CON for the financially constrained firms ($\beta_1 + \beta_3$) is negative as expected by our second hypothesis, the findings do not show a consistent difference relative to that for the financially unconstrained group.

Together, these results show that CSA_STR actions negatively impact market value of unconstrained firms, and that this effect is tempered for constrained counterparts in support to our first hypothesis. While social concerns (CSA_CON) appear to negatively impact Tobin's Q for the whole undifferentiated sample as well as for unconstrained firms, there is no consistent differences between the differentiated samples.

We now disaggregate further and respectively separate social strengths and concerns scores to those targeting primary stakeholders or firm trading partners (or technical CSA) and those targeting secondary stakeholders or society at large (or institutional CSA). For this, we follow Mattingly and Berman (2006) and get primary and secondary CSA strengths (TCSA_STR and ICSA_STR) and also primary and secondary CSA concerns (TCSA_CON and ICSA_CON). In column 2 of Table 3.4, we test the effects of these four social scores on Tobin's Q for the whole sample. Except for TCSA_STR and consistent with the results in Table 3.3, ICSA_STR, TCSA_CON and ICSA_CON scores are significantly and negatively related to a firm's market value. Based on columns 3 to 6 and consistent with the results in Table 3.3, we also find that strengths (concerns) based measures for the financially unconstrained group significantly and negatively affect a firm's Tobin's Q.

Table 3.4: Firm fixed effects regressions of TCSA_STR, ICSA_STR, TCSA_CON and ICSA_CON scores

		Financial constraint proxy (FC_Proxy)			
VARIABLES		**PR**	**BR**	**WW**	**Size_fc**
TCSA_STR	-0.0221	-0.0485*	-0.0586***	-0.0693***	-0.0975***
	(-1.179)	(-1.875)	(-2.787)	(-3.047)	(-4.132)
ICSA_STR	-0.1477***	-0.1556***	-0.1384***	-0.1451***	-0.1415***
	(-7.669)	(-6.701)	(-7.552)	(-6.457)	(-6.442)
TCSA_CON	-0.0956***	-0.1293***	-0.1082***	-0.0812***	-0.1027***
	(-7.334)	(-7.550)	(-7.785)	(-4.498)	(-6.430)
ICSA_CON	-0.1316***	-0.0649**	-0.1236***	-0.0737**	-0.1164***
	(-4.272)	(-2.112)	(-3.883)	(-2.221)	(-3.276)
FC_Proxy		0.0442	0.3369***	0.3727***	0.8263***
		(1.106)	(3.920)	(8.406)	(8.278)
FC_Proxy *TCSA_STR		0.0669*	0.1108**	0.0787***	0.2046***
		(1.940)	(2.512)	(2.607)	(3.769)
FC_Proxy *ICSA_STR		0.0113	-0.0041	-0.0285	0.0725
		(0.512)	(-0.079)	(-1.314)	(1.163)
FC_Proxy *TCSA_CON		0.0370**	0.0583**	-0.0359*	0.0456
		(2.169)	(2.212)	(-1.832)	(1.308)
FC_Proxy *ICSA_CON		-0.0685***	-0.0154	-0.1035***	0.0030
		(-2.710)	(-0.232)	(-3.996)	(0.038)
Size	0.2267***	0.2938***	0.2628***	0.2486***	0.4760***
	(5.890)	(7.275)	(6.761)	(5.673)	(10.517)
ROA	4.1378***	3.7633***	4.0194***	3.8827***	3.2759***
	(12.421)	(10.370)	(12.221)	(10.431)	(9.622)
SP_500	0.1754**	0.1371*	0.1650**	0.1286	0.0829
	(2.271)	(1.654)	(2.162)	(1.321)	(0.961)
Leverage	-0.0488	-0.0090	-0.0085	-0.0180	0.1135**
	(-1.325)	(-0.249)	(-0.228)	(-0.405)	(2.437)
Constant	-2.6245***	-3.0876***	-3.0721***	-2.9578***	-4.7855***
	(-9.309)	(-10.575)	(-10.543)	(-8.969)	(-13.605)
Observations	13,677	10,848	13,677	9,650	9,610
R-squared	0.195	0.199	0.208	0.210	0.252

Note: This table reports coefficients from the firm fixed effects regressions by financial constraints for our sample of 17,362 firm-year observations (1991-2007). All variables are defined in the note to Table 3.1. Robust and clustered (by firm) t-statistics are reported in parentheses. ***, **, * indicate significance at the 1%, 5% and 10% level, respectively.

For the financially constrained sample and for social strengths targeting primary stakeholders TCSA_STR, we get significant and positive incremental (β_3) and total (β_1+ β_3) effects on Tobin's Q for all four financial constraints proxies consistent with our first hypothesis. This result reveals that whilst TCSA_STR actions are value destroying for unconstrained firms, they are value enhancing for their constrained counterparts. For the same sample of constrained firms and for social strengths targeting secondary stakeholders ICSA_STR, we obtain insignificant results for the incremental impact.

Consistent with the second hypothesis and for both financially constrained and unconstrained firms, the net effects of TCSA_CON and ICSA_CON scores on Tobin's Q are negative. However, it is only the significant and negative incremental impact of ICSA_CON for two out of the four financing constraints measures, which is supportive for our second hypothesis. The results of the differential effect of financially constrained firms over the unconstrained are mixed for TCSA_CON.

In summary, the findings reported in Table 3.4 provide four results. First, TCSA_STR actions are value destroying for unconstrained firms but value enhancing for their constrained counterparts. Second, the effect of ICSA_STR actions on a firm's Tobin's Q is similar for constrained and unconstrained firms. Third, firm value sensitivity to ICSA_CON scores appears to be more pronounced for financially constrained than for unconstrained firms. Fourth, no consistent differences exist in Tobin's Q sensitivities to TCSA_CON between financially constrained and unconstrained firms.

In addition, it should be noted that for all the CSA measures used and as expected, the estimated coefficients for ROA and S&P 500 membership are generally significant and positive. In contrast to expectations, the coefficient of the Size variable is consistently positive and significant.

Finally, in almost all the estimations, the financial constraint measure has a positive effect on Tobin's Q. While there is no consensus in the literature about the expected effect, Lang and Stulz (1994), Servaes (1996), amongst others, consider that firms without access to external capital will have a higher Tobin's Q because they can undertake the full set of investments with positive net present values.

3.5. Tests of robustness

3.5.1. DSI 400 membership

Instead of using KLD scores, we employ firm's inclusion in the KLD Domini Social Index (DSI 400) as indicator of social responsibility reputation and thereby of important involvement in different social activities. Each year and for each firm, a dummy variable is created with a value of '1' if the firm is included in DSI 400 and '0' otherwise. The results from re-estimating our models, which are summarized in Table 3.5, indicate no impact of a firm's membership in the DSI 400 on its market value for the undifferentiated sample. When the payout ratio and Whited and Wu index (Whited and Wu index) are used as financial constraints proxies, the results show that DSI 400 membership positively (negatively) affect a firm's market value for the financially constrained (unconstrained) firms. These results are qualitatively similar to those obtained earlier using the total aggregated CSA_TOT in Table 3.2.

Table 3.5: Firm fixed effects regressions with DSI 400 membership dummy

		Financial constraint proxy (FC_Proxy)			
VARIABLES		**PR**	**BR**	**WW**	**Size_fc**
DSI_400	-0.0169	-0.1026	-0.0277	-0.1546*	-0.0373
	(-0.231)	(-1.164)	(-0.359)	(-1.764)	(-0.424)
FC_Proxy		0.0916***	0.5037***	0.2050***	0.9769***
		(2.639)	(5.695)	(5.659)	(8.857)
FC_Proxy *DSI_400		0.1433**	-0.0400	0.2180***	0.1211
		(2.348)	(-0.344)	(3.350)	(0.935)
Size	0.0817**	0.1582***	0.1157***	0.0902**	0.3046***
	(2.190)	(3.907)	(3.048)	(2.166)	(6.727)
ROA	4.6912***	4.3104***	4.5859***	4.4735***	3.9738***
	(13.092)	(11.043)	(12.908)	(11.136)	(10.238)
SP_500	0.1886**	0.1638*	0.1802**	0.1250	0.0693
	(2.370)	(1.917)	(2.290)	(1.258)	(0.795)
Leverage	-0.1506***	-0.0966***	-0.1089***	-0.1315***	-0.0081
	(-4.045)	(-2.678)	(-2.850)	(-2.901)	(-0.167)
					(0.935)
Constant	-1.8785***	-2.4485***	-2.3523***	-2.0209***	-3.8849***
	(-6.719)	(-8.088)	(-8.070)	(-6.226)	(-10.749)
Observations	13,677	10,848	13,677	9,650	9,610
R-squared	0.150	0.154	0.161	0.157	0.192

Note: This table reports coefficients from the firm fixed effects regressions by financial constraints for our sample of 17,362 firm-year observations (1991-2007). DSI_400: dummy variable with a value of '1' if the firm is included in DSI 400 and '0' otherwise. All variables are defined in the note to Table 3.1. Robust and clustered (by firm) t-statistics are reported in parentheses. ***, **, * indicate significance at the 1%, 5% and 10% level, respectively.

3.5.2. Endogeneity of CSA measures

The theoretical and empirical CSR literatures suggest different links between corporate social performance and financial performance. Among these, we have the positive and

negative synergetic links. Waddock and Graves (1997) find support for the positive synergy relationship stipulating that a better social performance can lead to better financial performance, which in turn can lead to better social performance. Also, we can have a negative synergy if higher corporate social performance leads to lower financial performance, which in turn restricts social engagement. There may then be a simultaneous and interactive negative relation between these two variables (Makni *et al.*, 2009).

Synergetic links raises the possibility of endogeneity in the CSA measures. To check if our previous results still hold, we employ the two-step GMM estimation approach, using instrumental variables, to re-estimate our models. In the first step, CSA measures are predicted using a set of instruments including the industry average CSA measure (El Ghoul *et al.*; 2011), but also lags of control variables, interactions and CSA variables All estimations control for firm fixed effects and only the results of the second step estimation are reported.[27]

Table 3.6 reports the GMM regression results for our model examining the effect of financial constraints on the relationship between CSA, measured by the total aggregated score of CSA_TOT and Tobin's *Q*. Except when payout ratio is used as financial constraint proxy and for unconstrained firms, the results qualitatively support our earlier findings based on firm fixed effects estimations. Although the incremental effect of CSA when being financially constrained is positive, the net impact is now either negative, positive or insignificant.

[27] We use Stata's xtivreg2 command (Schaffer, 2010) which implements 2SLS / IV estimation of the fixed-effects and first-differences panel data models with possibly endogenous regressors.

Table 3.6: Firm fixed effects GMM regressions of the total aggregated CSA measure

		Financial constraint proxy (FC_Proxy)			
VARIABLES		**PR**	**BR**	**WW**	**Size_fc**
CSA_TOT	0.2428***	-0.0912*	0.0252	-0.0387	-0.0277
	(4.936)	(-1.699)	(0.729)	(-0.902)	(-0.699)
FC_Proxy		0.1338***	0.5417***	0.2731***	1.0087***
		(3.620)	(5.870)	(6.918)	(9.111)
FC_Proxy *CSA_TOT		0.0768**	-0.0137	0.0427*	0.0168
		(2.276)	(-0.432)	(1.780)	(0.433)
Size	0.1141***	0.2088***	0.0951**	0.0095	0.2791***
	(2.822)	(4.670)	(2.360)	(0.200)	(6.011)
ROA	4.6246***	4.5709***	4.9662***	5.5287***	4.3831***
	(12.007)	(9.156)	(12.246)	(10.405)	(10.096)
SP_500	0.1328*	0.1554*	0.1865**	0.1627	0.0885
	(1.958)	(1.816)	(2.413)	(1.501)	(0.989)
Leverage	-0.1051***	-0.0397	-0.1326***	-0.1506***	-0.0379
	(-2.601)	(-0.942)	(-3.058)	(-2.727)	(-0.737)
Observations	13,213	6,551	10,603	5,777	7,531
P-value of Hansen test	0.4779	0.1106	0.2116	0.2596	0.3420

Note: This table reports coefficients from the firm fixed effects regressions by financial constraints using GMM estimator for our sample of 17,362 firm-year observations (1991-2007). All variables are defined in the note to Table 3.1. Robust and clustered (by firm) t-statistics are reported in parentheses. ***, **, * indicate significance at the 1%, 5% and 10% level, respectively.

In Table 3.7, we present the GMM regression results when CSA are measured by the total strengths and concerns scores (CSA_STR and CSA_CON). These results qualitatively support our earlier findings based on firm fixed effects estimations. Moreover, the incremental impact of financial constraints for CSA_STR is significant and positive for all the four proxies of financings constraints instead of the three obtained earlier for the fixed effects estimations.

Table 3.7: Firm fixed effects GMM regressions of total strengths and concerns CSA scores

		Financial constraint proxy (FC_Proxy)			
VARIABLES		**PR**	**BR**	**WW**	**Size_fc**
CSA_STR	-0.6030*	-0.1692***	-0.2065***	-0.4522**	-0.3237**
	(-1.934)	(-4.202)	(-3.500)	(-2.448)	(-2.165)
CSA_CON	-0.3731***	-0.1882***	-0.1987***	0.0995	0.0749
	(-2.832)	(-4.105)	(-3.626)	(0.602)	(0.586)
FC_Proxy		-0.1540***	0.1161	0.3679**	0.8565***
		(-2.623)	(0.823)	(2.232)	(4.897)
FC_Proxy *CSA_STR		0.0599**	0.1120**	0.1655*	0.2089*
		(2.320)	(2.100)	(1.823)	(1.773)
FC_Proxy *CSA_CON		0.0531*	0.1414***	-0.1765*	-0.0511
		(1.844)	(2.727)	(-1.739)	(-0.407)
Sise	0.7280***	0.3306***	0.3365***	0.3666***	0.5000***
	(5.186)	(7.115)	(6.276)	(3.789)	(5.709)
ROA	2.3754***	3.8912***	4.1347***	3.8722***	3.4129***
	(3.128)	(9.329)	(9.376)	(7.771)	(7.180)
SP_500	0.2936*	0.1645*	0.1852**	0.1600	0.1600
	(1.958)	(1.938)	(2.020)	(1.216)	(1.270)
Leverage	0.3887***	0.0218	0.0745	0.1100	0.1559**
	(2.986)	(0.496)	(1.370)	(1.301)	(2.047)
Observations	8,368	8,048	8,384	7,276	6,955
P-value of Hansen test	0.1483	0.4560	0.1507	0.4441	0.7037

Note: This table reports coefficients from the firm fixed effects regressions by financial constraints using GMM estimator for our sample of 17,362 firm-year observations (1991-2007). All variables are defined in the note to Table 3.1. Robust and clustered (by firm) t-statistics are reported in parentheses. ***, **, * indicate significance at the 1%, 5% and 10% level, respectively.

Table 3.8 provides the GMM findings when the four measures of Mattingly and Berman are used as measures of CSA. Although the findings for financially unconstrained firms are weaker than what we obtained with the fixed effects regressions, those for financially constrained firms are generally similar. The incremental impact of TCSA_STR is significant

and positive for three out of the four financing constraints measures. This supports our earlier results but the net effect becomes negative. The remaining results for ICSA_STR, TCSA_CON and ICSA_CON are qualitatively supportive of those of our earlier firm fixed effects estimations.

Table 3.8: Firm fixed effects GMM regressions of TCSA_STR, ICSA_STR, TCSA_CON and ICSA_CON scores

		Financial constraint proxy (FC_Proxy)			
VARIABLES		**PR**	**BR**	**WW**	**Size_fc**
TCSA_STR	-0.0356	-0.0969	-0.0787*	-1.5108**	-0.8484*
	(-0.392)	(-0.488)	(-1.953)	(-2.382)	(-1.763)
ICSA_STR	-0.2262***	-0.2213	-0.1870***	-1.0768**	-0.3111
	(-2.829)	(-1.484)	(-4.988)	(-2.468)	(-0.817)
TCSA_CON	-0.2225***	-0.3678***	-0.1416***	0.3287	-0.1423
	(-4.224)	(-3.495)	(-4.613)	(1.412)	(-0.756)
ICSA_CON	-0.0964	0.1502	-0.1296**	0.5524	0.4350
	(-0.808)	(0.843)	(-2.118)	(1.379)	(0.834)
FC_Proxy		-0.3371***	0.3031***	0.1119	0.3983
		(-3.090)	(2.895)	(0.561)	(1.558)
FC_Proxy *TCSA_STR		0.0875	0.1149**	0.9670**	0.8218**
		(0.605)	(2.328)	(2.222)	(2.017)
FC_Proxy *ICSA_STR		0.0543	0.0212	0.2632	0.0897
		(0.578)	(0.407)	(1.164)	(0.318)
FC_Proxy *TCSA_CON		0.2436***	0.1066***	-0.3230*	0.1079
		(2.872)	(2.993)	(-1.894)	(0.548)
FC_Proxy *ICSA_CON		-0.1871**	-0.0267	-0.4808**	-0.4865
		(-2.067)	(-0.378)	(-2.256)	(-0.958)
Size	0.3090***	0.4093***	0.2928***	0.6314***	0.6470***
	(6.634)	(8.175)	(6.713)	(6.187)	(6.759)
ROA	4.0295***	3.5602***	4.2037***	2.6856***	2.5026***
	(10.284)	(7.712)	(11.237)	(3.754)	(3.730)
SP_500	0.1712**	0.0904	0.1523**	0.2953	0.2839
	(2.433)	(0.956)	(1.973)	(1.508)	(1.570)
Leverage	0.0217	0.0826*	0.0192	0.2737**	0.2840***
	(0.466)	(1.848)	(0.457)	(2.324)	(3.381)
Observations	10,603	6,551	10,591	7,280	6,497
P-value of Hansen test	0.8740	0.2286	0.8731	0.1881	0.2652

Note: This table reports coefficients from the firm fixed effects regressions by financial constraints using GMM estimator for our sample of 17,362 firm-year observations (1991-2007). All variables are defined in the note to Table 3.1. Robust and clustered (by firm) t-statistics are reported in parentheses. ***, **, * indicate significance at the 1%, 5% and 10% level, respectively.

3.5.3. Elimination of negative cash flows

Bhagat *et al.* (2005) find that the investment behaviour of distressed firms differs from that of healthy firms. To examine if our results are driven by these firms, we next repeat all our regressions without firms with negative cash flow observations (i.e. firms that are more likely to be in financial distress).

Based on the regressions reported in the appendix (A2 to A4), our overall findings, and therefore conclusions, are comparable to those obtained earlier when all cash flow observations are used.

3.6. Conclusion

In this study we tested how a firm's access to external financing impacts the relationship between a firm's market value and its social actions. To assess this issue, we use different social actions and financial constraints measures and we perform our analyses on a sample of 17,362 U.S firm-year observations from the 1991-2007 time period. We subject our findings to a set of robustness tests. First, we employ DSI 400 membership as an indicator of important firm social engagement. Second, we control for the endogeneity of CSA measures. Third, we restrict our analysis to positive cash flow observations to avoid any negative effects of being financially distressed on the findings

The distinction between financially constrained versus unconstrained firms, discretionary versus non-discretionary social actions and primary versus secondary stakeholders reveal that CSA might be either value reducing or protecting. When the firm is financially constrained, we found that the reducing effect of CSA is tempered while the protecting effect is enhanced. Therefore, CSA seem to be more valuable for financially constrained than for unconstrained firms.

In particular, total strengths actions and those targeting primary stakeholders are found to have a negative impact on a firm's market value and this effect is tempered for financially constrained firms. In addition, although the findings for total concerns and those related to

primary stakeholders indicate a negative effect on Tobin's Q, they do not reveal consistent differences between financially constrained and unconstrained groups. However, it is likely that firm value sensitivity to secondary stakeholders concerns is more pronounced for financially constrained firms. Consequently, strengths and concerns actions aimed to affect respectively primary and secondary stakeholders are more valuable for financially constrained than for unconstrained firms.

Our results have managerial implications. While financially constrained firms are less engaged in social actions, such activities might be more valuable for them. However, only non-discretionary actions dealing with social concerns could protect their market value. Specifically, those targeting secondary stakeholders allow more increased protection in comparison to financially unconstrained firms.

In this study, we investigate the effect of financial constraints on the link between firm's market value and its social involvement in the US context and using KLD data. Future research might examine this effect in other context and might use different social data source. Also, since the effect of CSR engagement on firm's market value might require time to be revealed, we could include lagged CSR variables when specifying the model.

REFERENCES

Allayannis, G. and Weston, J.P. (2001), ''The use of foreign currency derivatives and firm market value'', *The Review of Financial Studies*, 14: 243–276.

Almeida, H. and Campello, M. (2007), ''Financial constraints, asset tangibility, and corporate investment'', *The Review of Financial Studies*, 20: 1429–60.

Bhagat, T.S., Moyen, N. and Suh, I. (2005), ''Investment and internal funds of distressed firms'', *Journal of Corporate Finance,* 11: 449– 472.

Bird, R., Hall, A., Momente, F. and Reggiani, F. (2007), ''What corporate social responsibility activities are valued by the market?'', *Journal of Business Ethics*, 76: 189–206.

Boyle, E. J., Higgins, M. M. and Rhee, S. G. (1997), ''Stock market reaction to ethical initiatives of defense contractors: Theory and evidence'', *Critical Perspectives on Accounting*, 8(6): 541–561.

Brammer, S., Brooks, C. and Pavelin, S. (2006), ''Corporate social performance and stock returns UK evidence from disaggregate measures'', *Financial Management,* 35(3): 97–116.

Carpenter, R., and Petersen, B. (2002), ''Is the growth of small firms constrained by internal finance?'', *Review of Economics and Statistics*, 84(2): 298-309.

Chen, W.P., Chung, H., Hsu, T.L. and Wu, S. (2010), ''External financing needs, corporate governance, and firm value'', *Corporate Governance: An International Review*, 18(3): 234–249.

Cochran, P. L., and Wood, R.A. (1984), ''Corporate social-responsibility and financial performance'', *Academy of Management Journal, 27*(1): 42-56.

El Ghoul, S., Guedhami, O., Kwok, C.Y. and Mishra, D. (2011), ''Does corporate social responsibility affect the cost of capital? '', *Journal of Banking and Finance*, 35(9): 2388-2406.

Epstein, M.J. and Schneitz, K.E. (2002), ''Measuring the cost of environmental and labor protests to globalization: An event study of the failed 1999 Seattle WTO talks'', *The International Trade Journal*, 16(2): 129-160.

Erickson, T. and Whited, T. (2000), ''Measurement error and the relationship between investment and Q'', *Journal of* Political *Economy*, 108: 1027-1057.

Fahlenbrach, R. and Slutz, R. M. (2009), ''Managerial ownership dynamics and firm value'', *Journal of Financial Economics*, 92: 342–361.

Fama, E.F. and French, K.R. (1997), ''Industry costs of equity'', *Journal of Financial Economics*, 43: 153–194.

Fazzari, S.M., Hubbard, R.G. and Petersen, B.C. (1988), ''Financing constraints and corporate investment'', *Brookings Papers on Economic Activity*, 1: 141–195.

Fombrun, C. J., and Shanley, M. (1990), ''What's in a name? Reputation building and corporate strategy'', *Academy of Management Journal, 33*(2): 233-258.

Fombrun, C.J. (1996), ''Reputation: Realizing value from the corporate image'', Harvard Business School Press, Boston, United States.

Fombrun, C.J. (2005), ''Building corporate reputation through CSR initiatives: evolving standards'', *Corporate Reputation* Review, 8(1): 7-11.

Fombrun, C.J., Gardberg, N.A. and Barnett, M.L. (2000), ''Opportunity platforms and safety nets: Corporate citizenship and reputational risk'', *Business and Society Review*, 105(1): 85–106.

Freeman, R.E. (1984), "Strategic management: A stakeholder approach'', Boston, MA: Pitman/Ballinger.

Freeman, R.E., Harrison, J.S., and Wicks, A.C. (2007), ''Managing for stakeholders: survival, reputation, and success'', New Haven, CT: Yale University Press, United States.

Friedman, M. (1970), ''The social responsibility of business is to increase its profits'', *The New York Times Magazine*, September 13: 122–126.

Gilchrist, S. and Himmelberg, C.P. (1995), ''Evidence on the role of cash flow in reduced-form investment equations'', *Journal of Monetary Economics,* 36: 541–572.

Godfrey, P.C. (2005), ''The relationship between corporate philanthropy and shareholder wealth: A risk management perspective'', *Academy of Management Review,* 30: 777-798.

Godfrey, P.C., Merrill, C.B., and Hansen, J.M. (2009), "The relationship between corporate social responsibility and shareholder value: An empirical test of the risk management hypothesis", *Strategic* Management *Journal*, 30: 425-445.

Greening, D.W. and Turban, D.B. (2000), "Corporate social performance as a competitive advantage in attracting a quality workforce", *Business and Society*, 39: 254-280.

Hahn, J. and Lee, H. (2009), ''Financial constraints, debt capacity, and the cross-section of stock returns'', *The Journal of Finance*, 64(2): 891-921.

Hillman A.J. and Keim, G.D. (2001), "Shareholder value, stakeholder management, and social issues: What's the bottom line?", *Strategic Management Journal*, 22: 125-139.

Kapstein, E.B. (2001), ''The corporate ethics crusade'', *Foreign Affairs, 80*(5): 105–119.

Kashyap, A.K., Lamont, O.A. and Stein, J.C. (1994). "Credit conditions and the cyclical behavior of inventories", *Quarterly Journal of Economics,* 109: 565–592.

Lamont, O., Polk, C. and Saa-Requejo, J. (2001), ''Financial constraints and stock returns'', *Review of Financial Studies*, 14: 529-54.

Lang, L. and Stulz, R. (1994), ''Tobin's Q, corporate diversification, and firm performance'', *Journal of Political Economy,* 102: 1248-1280.

Makni, R., Francoeur, C. and Belleavance, F., (2009), ''Causality between corporate social performance and financial performance: Evidence from Canadian firms'', *Journal of Business Ethics*, 89: 409–422

Margolis, J. D. and Walsh, J. P. (2003), "Misery loves companies: rethinking social initiatives by business'', *Administrative Science Quarterly*, 48: 268–305.

Mattingly, J.E. and Berman, S.L. (2006), ''Measurement of corporate social action: Discovering taxonomy in the Kinder Lydenberg Domini ratings data'', *Business and Society,* 45(1): 20–46.

McConnell, J. and Servaes, H. (1990), ''Additional evidence on equity ownership and corporate value'', *Journal of Financial Economics*, 27: 595–612.

Mitchell, R.K., Agle, B.R. and Wood, D.J. (1997), ''Toward a theory of stakeholder identification and salience: defining the principle of who and what really counts'', *Academy of Management Review,* 22(4): 853–886.

Mitnick, B. M. (2000). ''Commitment, revelation, and the testaments of belief: The metrics of measurement of corporate social performance'', *Business and Society*, 39: 419-465.

Modigliani, F. and Miller, H. (1958), ''The cost of capital, corporation finance, and the theory of investment'', *American* Economic *Review*, 48: 261-297.

Morck, R. and Yang, F. (2001), ''The mysterious growing value of the S&P 500 membership'', NBER Working Paper, No 8654.

Moskowitz, M. (1972), "Choosing socially responsible stocks", *Business and Society Review*, 1: 71-75.

Orlitzky, M., Schmidt, F.L. and Rynes, S.L. (2003), "Corporate Social and Financial Performance: a Meta-Analysis'', *Organization Studies*, 24 (3): 403–441.

Palia, D. (2001), ''The endogeneity of managerial compensation in firm value: a solution'', *The* Review *of Financial Studies*, 14: 735–764.

Schaffer, M.E. (2010), ''xtivreg2: Stata module to perform extended IV/2SLS, GMM and AC/HAC, LIML and k-class regression for panel data models'', available at http://ideas.repec.org/c/boc/bocode/s456501.html.

Smith, C. and Watts, R. (1992), ''The investment opportunity set and corporate financing, dividend and compensation policies'', Journal *of Financial Economics*, 32: 263–292.

Tobin J., (1969), "A general equilibrium approach to monetary theory", *Journal of Money Credit and Banking*, 1 (1): 15-29.

Tsoutsoura, M. (2004), ''Corporate social responsibility and financial performance'', Haas School of Business, Applied Financial Project, University of California, Berkeley.

Turban, D.B. and Greening, D.W. (1997), ''Corporate social performance and organizational attractiveness to prospective employees'', *Academy of Management Journal*, 40(3): 658–672.

Waddock, S.A., and Graves, S.B. (1997), ''The corporate social performance - Financial performance link'', *Strategic Management Journal,* 18(4): 303-319.

Whited, T. (1992), ''Debt, liquidity constraints, and corporate investment: Evidence from panel data'', *Journal of Finance,* 47: 425–60.

Whited, T. and Wu, G. (2006), ''Financial constraints risk'', *Review of Financial Studies,* 19: 531–559.

APPENDIX 3.1

VARIABLE DEFINITIONS

Appendix 3.1: VARIABLE DEFINITIONS

Variable	Description	COMPUSTAT item name
PR	(Dividends + Stock repurshases) / net income	(DVT + PRSTKC) / NI
CF	Ratio of Cash and short term investment	CHE / AT
DIVPOS	Dividend dummy: indicator=1 if firm pays cash dividends	DVT
TLTD	Long term debt to total assets	DLTT / AT
LNTA	Natural log of total assets	ln (AT)
SG	Sales growth	Annual REVT growth
ISG	Industry sales growth based on 48 Fama and French categories	Annual industry REVT growth
Whited-Wu Index	-0.091*CF + 0.062*DIVPOS + 0.021*TLTD – 0.044*LNTA + 0.102*ISG – 0.035*SG	
Tobin's *Q*	(Book value of assets + (share price * number of common shares outstanding) - (book value per share * number of common shares outstanding) - Deferred taxes) / Book value of assets	(AT + (PRCC-F * CSHO) - BKVLPS * CSHO) - TXDB) / AT
Size	Natural log of market value of equity	ln (CSHO * PRCC-F)
Leverage	Long term debt / market value of equity	DLTT / (CSHO * PRCC-F)
ROA	Earnings before interest and taxes on lagged total assets	EBIT / Lagged AT

APPENDIX 3.2

FIRM FIXED EFFECTS REGRESSIONS OF CSA AGGREGATE MEASURE WITHOUT NEGATIVE CASH FLOW OBSERVATIONS

Appendix 2: Firm fixed effects regressions of the total aggregated CSA measure without negative cash flow observations

Variables		Financial constraint (FC_Proxy)			
		PR	BR	WW	SIZE
CSA_TOT	0.0038	-0.0057	0.0069	-0.0158	-0.0068
	(0.348)	(-0.432)	(0.590)	(-1.171)	(-0.493)
FC_Proxy		0.1369***	0.4978***	0.2766***	0.9697***
		(4.435)	(5.835)	(7.877)	(9.497)
FC_Proxy *CSA_TOT		0.0313**	-0.0193	0.0376***	0.0224
		(2.527)	(-0.856)	(2.732)	(0.886)
Size	0.0081	0.0707*	0.0438	0.0213	0.2133***
	(0.222)	(1.891)	(1.190)	(0.491)	(4.709)
ROA	6.3933***	6.2411***	6.2373***	6.2791***	5.5536***
	(16.279)	(14.654)	(15.927)	(14.448)	(13.318)
SP_500	0.2057**	0.1929**	0.1921**	0.1530	0.1505
	(2.473)	(2.147)	(2.333)	(1.422)	(1.618)
Leverage	-0.1946***	-0.1268***	-0.1482***	-0.1831***	-0.0508
	(-4.311)	(-2.859)	(-3.193)	(-3.299)	(-0.867)
Constant	-1.6010***	-2.1373***	-2.0734***	-1.8371***	-3.5050***
	(-5.638)	(-7.353)	(-7.120)	(-5.231)	(-9.388)
Observations	11,453	8,837	11,453	8,039	8,074
R-squared	0.210	0.227	0.222	0.216	0.237

This table reports coefficients from the firm fixed effects regressions by financial constraints for our sample and excluding negative cash flows observations. All variables are defined in the note to Table 3.1. Robust and clustered (by firm) t-statistics are reported in parentheses. ***, **, * indicate significance at the 1%, 5% and 10% level, respectively.

APPENDIX 3.3

FIRM FIXED EFFECTS REGRESSIONS OF CSA_STR AND CSA_CON SCORES WITHOUT NEGATIVE CASH FLOW OBSERVATIONS

Appendix 3.3: Firm fixed effects regressions of CSA_STR and CSA_CON scores without negative cash flow observations

Variables		Financial constraint (FC_Proxy)			
		PR	BR	WW	SIZE
CSA_STR	-0.0817***	-0.0892***	-0.0853***	-0.0914***	-0.1010***
	(-6.933)	(-6.280)	(-7.141)	(-6.685)	(-7.393)
CSA_CON	-0.0928***	-0.0941***	-0.1029***	-0.0724***	-0.0964***
	(-7.903)	(-6.554)	(-8.552)	(-4.841)	(-7.198)
FC_Proxy		0.0522	0.3372***	0.4002***	0.8318***
		(1.358)	(3.655)	(8.408)	(7.637)
FC_Proxy *CSA_STR		0.0324**	0.0269	0.0042	0.0821**
		(2.207)	(0.838)	(0.283)	(2.402)
FC_Proxy *CSA_CON		-0.0052	0.0704***	-0.0588***	0.0555**
		(-0.408)	(2.831)	(-4.161)	(1.981)
Size	0.1488***	0.1917***	0.1870***	0.1906***	0.3967***
	(3.767)	(4.828)	(4.759)	(4.011)	(8.591)
ROA	5.8788***	5.7727***	5.7207***	5.6660***	4.8365***
	(15.600)	(13.899)	(15.130)	(13.766)	(12.874)
SP_500	0.2024**	0.1820**	0.1876**	0.1544	0.1557*
	(2.434)	(2.024)	(2.262)	(1.433)	(1.674)
Leverage	-0.0835*	-0.0335	-0.0362	-0.0571	0.0911
	(-1.881)	(-0.755)	(-0.808)	(-1.027)	(1.638)
Constant	-2.3185***	-2.6629***	-2.7692***	-2.8068***	-4.4881***
	(-7.841)	(-9.039)	(-9.283)	(-7.695)	(-12.308)
Observations	11,453	8,837	11,453	8,039	8,074
R-squared	0.249	0.261	0.263	0.264	0.293

This table reports coefficients from the firm fixed effects regressions by financial constraints for our sample and excluding negative cash flows observations. All variables are defined in the note to Table 1. Robust and clustered (by firm) t-statistics are reported in parentheses. ***, **, * indicate significance at the 1%, 5% and 10% level, respectively.

APPENDIX 3.4

FIRM FIXED EFFECTS REGRESSIONS OF TCSA_STR, ICSA_STR, TCSA_CON AND ICSA_CON WITHOUT NEGATIVE CASH FLOW OBSERVATIONS

Appendix3.4: Firm fixed effects regressions of TCSA_STR, ICSA_STR, TCSA_CON and ICSA_CON without negative cash flow observations

Variables		Financial constraint (FC_Proxy)			
		PR	BR	WW	SIZE
TCSA_STR	-0.0298	-0.0542**	-0.0608***	-0.0720***	-0.0945***
	(-1.547)	(-2.124)	(-2.805)	(-3.036)	(-3.909)
ICSA_STR	-0.1305***	-0.1351***	-0.1203***	-0.1278***	-0.1256***
	(-7.064)	(-6.373)	(-6.570)	(-5.842)	(-5.845)
TCSA_CON	-0.0895***	-0.1171***	-0.1027***	-0.0848***	-0.1047***
	(-6.495)	(-6.697)	(-7.122)	(-4.425)	(-6.278)
ICSA_CON	-0.1289***	-0.0672**	-0.1234***	-0.0684**	-0.1101***
	(-4.199)	(-2.180)	(-3.917)	(-2.053)	(-3.059)
FC_Proxy		0.0177	0.3549***	0.3334***	0.7979***
		(0.442)	(3.816)	(6.978)	(7.538)
FC_Proxy*TCSA_STR		0.0747**	0.0918**	0.0597*	0.1696***
		(2.214)	(2.026)	(1.931)	(3.064)
FC_Proxy*ICSA_STR		0.0169	-0.0109	-0.0267	0.0505
		(0.754)	(-0.225)	(-1.206)	(0.933)
FC_Proxy*TCSA_CON		0.0273	0.0643**	-0.0209	0.0544*
		(1.556)	(2.222)	(-1.011)	(1.647)
FC_Proxy*ICSA_CON		-0.0601**	0.0203	-0.1103***	0.0142
		(-2.290)	(0.285)	(-4.079)	(0.192)
Size	0.1611***	0.2084***	0.1986***	0.1984***	0.4036***
	(4.110)	(5.251)	(5.055)	(4.203)	(8.668)
ROA	5.8067***	5.6605***	5.6432***	5.6134***	4.7387***
	(15.772)	(14.223)	(15.402)	(13.808)	(12.974)
SP_500	0.1944**	0.1650*	0.1807**	0.1533	0.1611*
	(2.355)	(1.842)	(2.214)	(1.442)	(1.749)
Leverage	-0.0759*	-0.0236	-0.0288	-0.0501	0.0938*
	(-1.711)	(-0.539)	(-0.640)	(-0.905)	(1.656)
Constant	-2.4228***	-2.7723***	-2.8717***	-2.8550***	-4.5397***
	(-8.218)	(-9.391)	(-9.582)	(-7.861)	(-12.313)
Observations	11,453	8,837	11,453	8,039	8,074
R-squared	0.252	0.267	0.266	0.266	0.296

This table reports coefficients from the firm fixed effects regressions by financial constraints for our sample and excluding negative cash flows observations. All variables are defined in the note to Table 1. Robust and clustered (by firm) t-statistics are reported in parentheses. ***, **, * indicate significance at the 1%, 5% and 10% level, respectively.

CONCLUSION

La considération de la performance sociale des entreprises connait une croissance importante tant au niveau des gestionnaires et des marchés financiers qu'au niveau académique. De nombreuses recherches ont étudié la relation entre cette performance sociale et celle financière. Toutefois, peu de travaux ont analysé ce lien dans un contexte de disponibilité des flux. L'objectif de cette thèse est d'étudier la relation entre les diverses actions sociales des entreprises et leurs contraintes de financement. Étant donné que très peu de travaux ont porté sur cet aspect, il n'était donc pas inutile d'apporter une nouvelle contribution. Dans la présente section nous présentons une synthèse des résultats obtenus, avant d'évoquer les limites et les prolongements possibles de ce travail de recherche.

Dans le premier essai, nous examinons l'effet de l'engagement social sur l'accès aux capitaux externes. Selon notre revue de littérature nous anticipons que le niveau des actions sociales affecte l'accès au financement externe et ce dépendamment de la sévérité de la contrainte de financement de l'entreprise et de la nature discrétionnaire des activités sociales engagées. Notre modèle économétrique de base pour tester nos hypothèses est le modèle d'investissement. Il utilise la sensibilité de l'investissement aux cash flows disponibles comme un indicateur de la sévérité de la contrainte de financement de l'entreprise. Ce modèle contrôle pour le niveau d'engagement social et pour les opportunités de croissance mesurées par le Q de Tobin.

D'une part, nos résultats montrent qu'un niveau élevé d'engagement social discrétionnaire, mesuré à la fois par la variable agrégée des actions sociales et par celle représentant uniquement les forces, affecte négativement l'accès aux capitaux externes pour les entreprises financièrement contraintes. Toutefois, aucun effet n'a été obtenu pour les entreprises non contraintes. D'autre part, nos résultats révèlent qu'un niveau élevé de faiblesses sociales a un effet négatif sur l'accès au financement externe à la fois pour les entreprises financièrement contraintes et celles non contraintes. En d'autres termes, les

entreprises ayant des externalités négatives ont plus difficilement accès au financement externe.

Une interprétation de ces résultats est que les investisseurs perçoivent les actions sociales en général, et particulièrement celles visant à améliorer les forces, comme étant discrétionnaires pour les entreprises financièrement contraintes. Comme ces dernières font face à des problèmes de liquidité, leur engagement dans des activités sociales volontaires pourrait menacer leur survie. Ceci n'est pas le cas pour les entreprises financièrement non contraintes pour qui, à l'équilibre, les coûts de l'engagement social égalisent les revenus et par conséquent aucune relation n'est observée.

Le deuxième essai de cette thèse examine l'impact des contraintes de financement de l'entreprise sur ses investissements dans les activités sociales. Notre hypothèse de base est que les actions sociales des entreprises contraintes sont affectées par les contraintes de financement et ce, différemment des entreprises non-contraintes. De manière plus spécifique, on s'attend à ce que les actions sociales discrétionnaires soient moins sensibles à la disponibilité de la liquidité interne pour les entreprises contraintes car nous assumons que celles-ci canaliseront les ressources limitées à leur disposition à des utilisations jugées plus prioritaires. De même, nous anticipons que leurs actions non-discrétionnaires soient plus sensibles aux disponibilités de cash flows que ne le sont celles des entreprises non contraintes.

Pour tester nos hypothèses nous recourons au modèle d'investissement qui permet de capturer l'effet des cash flows disponibles sur la variable représentant les actions sociales et ce, tout en contrôlant pour les opportunités de croissance mesurées par le Q de Tobin. Ce modèle tient compte de la contrainte de financement et nous permet d'isoler l'effet marginal des cash flows sur l'engagement social pour une entreprise financièrement contrainte.

Trois principaux résultats ont été obtenus. Premièrement, pour les entreprises non contraintes financièrement la sensibilité des actions sociales discrétionnaires à la liquidité interne est significative et positive en support à l'hypothèse des ressources disponibles. Deuxièmement, pour les entreprises contraintes financièrement, d'une part, la sensibilité des actions sociales discrétionnaires est plus faible que celle des non-contraintes. D'autre part,

elle est soit positive ou négative. Pour ces entreprises, l'engagement social discrétionnaire est réduit même si la liquidité interne augmente. Celle-ci est probablement canalisée vers des utilisations plus urgentes et non-discrétionnaires. Par conséquent, les contraintes de financement poussent ces entreprises au moins à diminuer leurs actions sociales discrétionnaires. Troisièmement, nos résultats révèlent que la sensibilité des actions, visant à réduire les faiblesses de l'entreprise au niveau social, aux cash flows est non significative. Ce résultat peut être expliqué par la nature non-discrétionnaire de ce type d'actions sociales engagées par les entreprises

Dans l'ensemble, les résultats obtenus montrent que les contraintes de financement de l'entreprise affectent négativement ses actions sociales discrétionnaires. Par conséquent, en plus de la liquidité interne invoquée par la théorie des ressources disponibles, c'est aussi l'accès au financement externe qui impacte l'engagement social de l'entreprise.

Dans le troisième essai, nous évaluons l'effet de l'engagement social sur la valeur de l'entreprise étant donné le niveau de la contrainte de financement de celle-ci. Notre hypothèse de base stipule que les actions sociales de l'entreprise sont mieux valorisées par le marché quand l'entreprise se trouve en situation de contrainte de financement. Principalement, le modèle utilisé pour tester nos hypothèses, explique la valeur de l'entreprise, mesurée par le Q de Tobin, par différentes mesures d'actions sociales et ce, tout en contrôlant pour le niveau de la contrainte de financement.

La distinction entre les entreprises contraintes et non-contraintes financièrement, les actions sociales discrétionnaires et non-discrétionnaires ainsi que les parties prenantes primaires et celles secondaires, révèle que les activités sociales peuvent être réductrices ou protectrices de valeur pour l'entreprise. En situation de contrainte de financement, nos résultats montrent que l'effet négatif de l'engagement social sur la valeur est tempéré alors que l'effet protecteur est plus prononcé.

En particulier, nos résultats révèlent que les actions sociales discrétionnaires (forces) et celles ciblant les parties prenantes primaires affectent négativement la valeur marchande de l'entreprise et que cet effet est tempéré pour les entreprises financièrement contraintes. De plus, nous avons trouvé que les faiblesses sociales (i.e. score total des faiblesses) et celles

reliées aux parties prenantes primaires ont un effet négatif sur le ratio Q de Tobin de l'entreprise et qu'il n'y a pas de différences significatives entre les entreprises contraintes et celles non-contraintes. Néanmoins, les résultats pour les actions sociales ciblant les faiblesses reliées aux parties prenantes secondaires semblent indiquer que celles-ci sont protectrices de la valeur de l'entreprise et que cet impact est plus grand pour les entreprises contraintes financièrement.

Enfin, ce travail de recherche présente certaines limites et se prête à certaines extensions. Premièrement, bien que les notations sociales de KLD aient des avantages, leur fiabilité et leur validité sont remises en cause. Par conséquent, il serait pertinent de recourir à d'autres sources de données sociales pour réévaluer les résultats obtenus. Deuxièmement, notre recherche a utilisé un échantillon formé uniquement d'entreprises américaines. De potentielles extensions consisteraient à tester ces relations dans d'autres pays. Troisièmement, les modèles qu'on a testés utilisent des variables contemporaines alors que les effets examinés pourraient demander du temps avant de se concrétiser. Une extension de ce travail peut envisager un délai d'une année ou plus pour l'évaluation des impacts étudiés.

REFERENCES

Abel, A. and Eberly, J. (2001), "Investment and Q with fixed costs: An empirical analysis", mimeo, University of Pennsylvania, available at http://www.kellogg.northwestern.edu/faculty/eberly/htm/Research/research.htm.

Akpinar, A., Jiang, Y., Mejia, L.R., Berrone, P. and Walls, J. (2008), ''Strategic use of CSR as a signal for good management'', IE Business School Working paper WP08-25, available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1134505.

Allayannis, G. and Mozumdar, A. (2004), ''The impact of negative cash flow and influential observations on investment–cash flow sensitivity estimates'', *Journal of Banking and Finance,* 28 (5): 901–930.

Allayannis, G. and Weston, J.P. (2001), ''The use of foreign currency derivatives and firm market value'', *The Review of Financial Studies*, 14: 243–276.

Almeida, H. and Campello, M. (2007), ''Financial constraints, asset tangibility and corporate investment'', *Review of Financial Studies*, 20: 1429–1460.

Almeida, H., Campello, M. and Weisbach, M. (2004), ''The cash flow sensitivity of cash'', *Journal of Finance*, 59: 1777–1804.

Alti, A. (2003), "How sensitive is investment to cash flow when financing is frictionless" *The Journal of Finance*, 58(2): 707-722.

Bird, R., Hall, A., Momente, F. and Reggiani, F. (2007), ''What corporate social responsibility activities are valued by the market?'', *Journal of Business Ethics*, 76: 189–206.

Barnea, A., and Rubin, A. (2010), ''Corporate social responsibility as a conflict between shareholder'', *Journal of Business Ethics*, 97: 71–86.

Belkaoui, A. (1976), ''The impact of the disclosure of the environmental effects of organizational behaviour on the market'', *Financial Management*, 5(4): 26-31.

Bellone, F., Musso, P., Nesta, L. and Schiavo, S. (2008), ''Financial constraints and firm export behavior'', *The World Economy,* 33(3): 347-373.

Bhagat, T.S., Moyen, N. and Suh, I. (2005), ''Investment and internal funds of distressed firms'', *Journal of Corporate Finance,* 11: 449– 472.

Bird, R., Casavecchiaa, L. and Reggianib, F. (2006), ''Corporate social responsibility and corporate performance: Where to begin?'', Working paper, available at http://www.efmaefm.org/0EFMAMEETINGS/EFMA%20ANNUAL%20MEETINGS/2007-Vienna/Papers/0366.pdf.

Bird, R., Hall, A., Momente, F. and Reggiani, F. (2007), ''What corporate social responsibility activities are valued by the market?'', *Journal of Business Ethics*, 76: 189–206.

Bond, S., Harhof, D. and Van Reenen, J. (1999), ''Investment, R&D and financial constraints in Britain and Germany'', Working Paper No 99/5 Institute for Fiscal Studies.

Bond, S. and Meghir, C. (1994), ''Dynamic investment models and the firm's financial policy'', *Review of Economic Studies,* 61: 197–222.

Boyle, E.J., Higgins, M.M. and Rhee, S.G. (1997), ''Stock market reaction to ethical initiatives of defense contractors: Theory and evidence'', *Critical Perspectives on Accounting*, 8(6): 541–561.

Bowman, E.H. (1980), ''A risk/return paradox for strategic management'', *Sloan Management Review*, 21(3): 17–31.

Brammer, S., Brooks, C. and Pavelin, S. (2006), ''Corporate social performance and stock returns UK evidence from disaggregate measures'', *Financial Management,* 35(3): 97–116.

Calem, P.S. and Rizzo, J.A. (1995), ''Financing constraints and investment: New evidence from hospital industry data'', *Journal of Money, Credit, and Banking*, 27(4): 1002-1014.

Calomiris, C.W., Himmelberg, C.P. and Wachtel, P. (1995), ''Commercial paper and corporate finance: A microeconomic perspective'', *Carnegie Rochester Conference Series on Public Policy*, 45: 203–250.

Carroll, A.B. (1979), ''A three-dimensional conceptual model of corporate performance'', *The Academy of Management Review*, 4: 497-505.

Carpenter, R. and Petersen, B. (2002), ''Is the growth of small firms constrained by internal finance?'', *Review of Economics and Statistics*, 84: 298–309.

Carpenter, R., Fazzari, S. and Petersen, B. (1994), ''Inventory (dis)investment, internal finance fluctuations, and the business cycle'', *Brookings Papers in Economic Activity*, 2: 75-138.

Carpenter, R., Fazzari, S. and Petersen, B. (1998), ''Financing constraints and inventory investment: A comparative study with high-frequency panel data'', *Review of Economics and Statistics*, 80: 513–519.

Carpenter, R., and Petersen, B. (2002), ''Is the growth of small firms constrained by internal finance?'', *Review of Economics and Statistics*, 84(2): 298-309.

Chen, W.P., Chung, H., Hsu, T.L. and Wu, S. (2010), ''External financing needs, corporate governance, and firm value'', *Corporate Governance: An International Review*, 18(3): 234–249.

Chen, R., Dyball, M.C. and Wright, S. (2009), ''The link between board composition and corporate diversification in Australian corporations'', *Corporate Governance: An International Review*, 17(2): 208-223.

Cleary, S. (1999), ''The relationship between firm investment and financial status'', *Journal of Finance,* 54 (2): 673–692.

Cleary, S., Povel, P. and Raith, M. (2007), ''The U-shaped investment curve: Theory and evidence'', *Journal of Financial and Quantitative Analysis,* 42 (1): 1–40.

Cochran, P.L., and Wood, R.A. (1984), ''Corporate social-responsibility and financial performance'', *Academy of Management Journal, 27*(1): 42-56.

Cummins, J., Hasset, K. and Oliner, S. (1999), ''Investment behavior, observable expectations, and internal funds'', *American Economic Review*, 96(3): 796–810.

Cummins, J., Hasset, K. and Oliner, S. (2006), "Investment behaviour, observable expectations and internal funds", *American Economic Review,* 96(3): 796–810.

Derwall, J., and Verwijmeren, P. (2007), ''Corporate Social Responsibility and the implied cost of equity capital'', Working paper.

Devereux, M.P. and Schiantarelli, F. (1990), ''Investment, financial factors and cash flow: evidence from UK panel data'', in R. G. Hubbard (ed.), *Asymmetric Information, Corporate Finance, and Investment* (Chicago: University of Chicago Press, 1990), available at http://www.nber.org/chapters/c11476.

El Ghoul, S., Guedhami, O., Kwok, C.Y. and Mishra, D. (2011), ''Does corporate social responsibility affect the cost of capital?'', *Journal of Banking and Finance*, 35(9): 2388-2406.

Epstein, M.J. and Schneitz, K.E. (2002), ''Measuring the cost of environmental and labor protests to globalization: An event study of the failed 1999 Seattle WTO talks'', *The International Trade Journal*, 16(2): 129-160.

Erickson, T. and Whited, T. (2000), ''Measurement error and the relationship between investment and Q'', *Journal of Political Economy*, 108: 1027-1057.

Fahlenbrach, R. and Slutz, R.M. (2009), ''Managerial ownership dynamics and firm value'', *Journal of Financial Economics*, 92: 342–361.

Fama, E.F. and French, K.R. (1997), ''Industry costs of equity'', *Journal of Financial Economics*, 43: 153–194.

Fazzari, S.M., Hubbard, R.G. and Petersen, B.C. (1988), ''Financing constraints and corporate investment'', *Brookings Papers on Economic Activity*, 1: 141–195.

Fazzari, S.M., Hubbard, R.G. and Petersen, B.C. (2000), ''Investment-cash flow sensitivities are useful: A comment on Kaplan and Zingales'', *Quarterly Journal of Economics*, 115: 695–705.

Feldman, S.J., Soyka, P.A. and Ameer, P.G. (1997), ''Does improving a firm's environmental management system and environmental performance result in a higher stock price?'', Environmental Group Study, ICF Kaiser International, Inc.: Fairfax, VA.

Fombrun, C.J., and Shanley, M. (1990), ''What's in a name? Reputation building and corporate strategy'', *Academy of Management Journal, 33*(2): 233-258.

Fombrun, C.J. (1996), ''Reputation: Realizing value from the corporate image'', Harvard Business School Press, Boston, United States.

Fombrun, C.J. (2005), ''Building corporate reputation through CSR initiatives: evolving standards'', *Corporate Reputation Review*, 8(1): 7-11.

Fombrun, C.J., Gardberg, N.A. and Barnett, M.L. (2000), ''Opportunity platforms and safety nets: Corporate citizenship and reputational risk'', *Business and Society Review*, 105(1): 85–106.

Freeman, R.E. (1984), "Strategic management: A stakeholder approach'', Boston, MA: Pitman/Ballinger.

Freeman, R.E., Harrison, J.S., and Wicks, A.C. (2007), ''Managing for stakeholders: survival, reputation, and success'', New Haven, CT: Yale University Press, United States.

Friedman, M. (1970), ''The social responsibility of business is to increase its profits'', *The New York Times Magazine*, September 13: 122–126.

Gilchrist, S. and Himmelberg, C.P. (1995), ''Evidence on the role of cash flow in reduced-form investment equations'', *Journal of Monetary Economics,* 36: 541–572.

Godfrey, P.C. (2005), ''The relationship between corporate philanthropy and shareholder wealth: A risk management perspective'', *Academy of Management Review,* 30: 777-798.

Godfrey, P.C., Merrill, C.B., and Hansen, J.M. (2009), "The relationship between corporate social responsibility and shareholder value: An empirical test of the risk management hypothesis", *Strategic Management Journal*, 30: 425-445.

Gomes, J. (2001), "Financing Investment," *American Economic Review,* 91: 1263-85.

Goss, A., and Roberts, G.S. (2011), ''The impact of corporate social responsibility on the cost of bank loans'', *Journal of Banking and Finance,* 35: 1794–1810

Greening, D.W. and Turban, D.B. (2000), "Corporate social performance as a competitive advantage in attracting a quality workforce", *Business and Society*, 39: 254-280.

Griffin, J.J. and Mahon, J.F. (1997), "The corporate social performance and corporate financial performance debate'', *Business and Society,* 36 (1): 5–31.

Guariglia, A. (1999), ''The effects of financial constraints on inventory investment: Evidence from a panel of UK firms'', *Economica*, 66: 43–62.

Guariglia, A. (2000), ''Inventory investment and capital market imperfections: A generalization of the linear quadratic inventory model'', *Oxford Bulletin of Economics and Statistics,* 62: 223–242.

Guariglia, A. (2008), ''Internal financial constraints, external financial constraints, and investment choice: Evidence from a panel of UK firms'', *Journal of Banking and Finance,* 32: 1795–1809.

Hahn, J. and Lee, H. (2009), ''Financial constraints, debt capacity, and the cross-section of stock returns'', *The Journal of Finance*, 64(2): 891-921.

Hamilton, S., Jo, H. and Statman, M. (1993), ''Doing well while doing good? The investment performance of socially responsible mutual funds'', *Financial Analysts Journal*, 49: 62–66.

Heal, G. (2005), ''Corporate social responsibility: An economic and financial framework'', The Geneva Papers on Risk and Insurance - Issues and Practice, 30(3): 387-409.

Heinkel, R., Kraus, A. and Zechner, J. (2001), "The effect of green investment on corporate behavior", *Journal of Financial and Quantitative Analysis*, 36: 431-449.

Hennessy, C. A. and Whited, T.M., (2007), ''How costly is external financing? Evidence from a structural estimation'', *Journal of Finance*, 62(4): 1705-1745.

Hillman, A.J. and Keim, G.D. (2001), "Shareholder value, stakeholder management, and social issues: What's the bottom line?", *Strategic Management Journal*, 22: 125-139.

Hong, H. and Kacperczyk, M. (2009), "The price of sin: The effects of social norms on markets", *Journal of Financial Economics*, 93: 15–36.

Hoshi, T., Kashyap, A.K. and Scharfstein, D. (1991), ''Corporate structure, liquidity, and investment: Evidence from Japanese panel data'', *Quarterly Journal of Economics,* 106: 33–60.

Houston, J.F., and James, C.M. (2001), ''Do relationships have limits? Banking relationships, financial constraints, and investment'', *Journal of Business,* 74: 347-373.

Hovakimian, A. and Hovakimian, G. (2009), ''Cash flow sensitivity of investement'', *European Financial Management,* 15(1): 47-65.

Hubbard, R.G. (1998), ''Capital-market imperfections and investment'', *Journal of Economic Literature*, 36: 193–225.

Husted, B.W. (2005), ''Risk management, real options, and corporate social responsibility'', *Journal of Business Ethics,* 60: 175–183.

Ioannou, I. and Serafeim, G. (2010), ''The impact of corporate social responsibility on investment recommendations'', Working Paper 11-017, Harvard business school, available at http://www.hbs.edu/research/pdf/11-017.pdf.

Jensen, M.C. and Meckling, W.H. (1976), "Theory of the firm: Managerial behavior, agency costs and ownership structure", *Journal of Financial Economics*, 3: 305–360.

Kadapakkam, P.R., Kumar, P.C. and Riddick, L.A. (1998), ''The impact of cash flows and firm size on investment: The international evidence'', *Journal of Banking and Finance*, 22: 293–320.

Kaplan, S.N. and Zingales, L. (1997), ''Do investment-cash flow sensitivities provide useful measures of financing constraints?'', *Quarterly Journal of Economics*, 112: 169–215.

Kaplan, S.N. and Zingales, L. (2000), ''Investment-cash flow sensitivities are not valid measures of financing constraints'', *Quarterly Journal of Economics*, 115: 707–712.

Kapstein, E.B. (2001), ''The corporate ethics crusade'', *Foreign Affairs, 80*(5): 105–119.

Karpoff, J.M., Lott, J.R. and Wehrly, E.W. (2005), "The reputational penalties for environmental violations: Empirical evidence", *Journal of Law and Economics*, 48: 653-675.

Kashyap, A.K., Lamont, O.A. and Stein, J.C. (1994). "Credit conditions and the cyclical behavior of inventories", *Quarterly Journal of Economics,* 109: 565–592.

Lamont, O., Polk, C. and Saa-Requejo, J. (2001), ''Financial Constraints and Stock Returns'', *Review of Financial Studies*, 14: 529-554.

Lamont, O. (1997), ''Cash flow and investment: Evidence from internal capital markets'', *Journal of Finance,* 52: 83–110.

Lamont, O., Polk, C. and Saa-Requejo, J. (2001), ''Financial constraints and stock returns'', *Review of Financial Studies*, 14: 529-54.

Lang, L. and Stulz, R. (1994), ''Tobin's Q, corporate diversification, and firm performance'', *Journal of Political Economy,* 102: 1248-1280.

Lombardo, D. and Pagano, M. (2002), "Law and equity markets, a simple model," in Joseph A. McCahery, ed.: *Corporate Governance Regimes: Convergence and Diversity* (Oxford University Press, London).

Makni, R., Francoeur, C. and Belleavance, F., (2009), ''Causality between corporate social performance and financial performance: Evidence from Canadian firms'', *Journal of Business Ethics*, 89: 409–422.

M'Zali, B., Charest, G., Turcotte, M.F, Gueyié, J.P. and Bouslah, K. (2004), ''Cote ou décote indiciaire sociale et sort boursier'', *FINÉCO,* 14: 59-88.

Margolis, J., Elfenbein, H., and Walsh, J. (2007); ''Does it pay to be good? A meta-analysis and redirection of research on the relationship between corporate social and financial performance'', Working Paper, available at http://stakeholder.bu.edu/2007/Docs/Walsh,%20Jim%20Does%20It%20Pay%20to%20Be%20Good.pdf.

Margolis, J.D. and Walsh, J. P. (2003), "Misery loves companies: rethinking social initiatives by business'', *Administrative Science Quarterly*, 48: 268–305.

Mattingly, J.E. and Berman, S.L. (2006), ''Measurement of corporate social action: Discovering taxonomy in the Kinder Lydenberg Domini ratings data'', *Business and Society,* 45(1): 20–46.

McConnell, J. and Servaes, H. (1990), ''Additional evidence on equity ownership and corporate value'', *Journal of Financial Economics*, 27: 595–612.

McGuire, J., Sundgren, A. and Schneeweis, T. (1988), ''Corporate social responsibility and firm financial performance'', *Academy of Management Journal*, 31(4): 854-72.

McWilliams, A. and Siegel, D. (2000), ''Corporate social responsibility and financial performance: correlation or misspecification'', *Strategic Management Journal*, 21: 603-609.

McWilliams, A. and Siegel, D. (2001), "Corporate social responsibility: a theory of the firm perspective'', *Academy of Management Review*, 26 (1): 117–127.

Merton, R. C. (1987), ''A simple model of capital market equilibrium with incomplete information'', *Journal of Finance*, 42: 483-510.

Mitchell, R.K., Agle, B.R. and Wood, D.J. (1997), ''Toward a theory of stakeholder identification and salience: defining the principle of who and what really counts'', *Academy of Management Review,* 22(4): 853–886.

Mitnick, B.M. (2000), ''Commitment, revelation, and the testaments of belief: The metrics of measurement of corporate social performance'', *Business and Society*, 39: 419-465.

Modigliani, F. and Miller, H. (1958), ''The cost of capital, corporation finance, and the theory of investment'', *American Economic Review*, 48: 261-297.

Morck, R. and Yang, F. (2001), ''The mysterious growing value of the S&P 500 membership'', NBER Working Paper, No 8654.

Moskowitz, M. (1972), "Choosing socially responsible stocks", *Business and Society Review*, 1: 71-75.

Moyen, N. (2004), "Investment–cash flow sensitivities: Constrained versus unconstrained firms'', *Journal of Finance,* 59: 2061–2092.

Myers, S. and Majluf, N.S. (1984), ''Corporate financing and investment decisions when firms have information that investors do not have'', *Journal of Financial Economics*, 13(2): 187-221.

Nickell, S. and Nicolitsas, D. (1999), "How does financial pressure affect firms?'', *European Economic Review,* 43: 1435–1456.

Orlitzky, M. and Benjamin, J.D. (2001), "Corporate social responsibility and firm risk: A Meta-analytic review", *Business and Society*, 40(4): 369-396.

Orlitzky, M. Schmidt, F.L. and Rynes, S.L. (2003), ''Corporate social and financial performance: A meta-analysis'', *Organization Studies*, 24(3): 403–441.

Palia, D. (2001), ''The endogeneity of managerial compensation in firm value: a solution'', *The Review of Financial Studies*, 14: 735–764.

Preston, L.E. and O'Bannon, D.P. (1997), "The corporate social–financial performance relationship: A typology and analysis'', *Business and Society,* 36: 419–429.

Rehbein, K., Waddock, S., and Graves, S. (2004), ''Understanding shareholder activism: Which corporations are targeted?'' *Business and Society,* 43(3): 239-267.

Reverte, C. (2011), ''The impact of better corporate social responsibility disclosure on the cost of equity capital '', *Corporate Social Responsibility and Environmental Management*, available online at (wileyonlinelibrary.com).

Schaffer, M.E. (2010), ''Xtivreg2: Stata module to perform extended IV/2SLS, GMM and AC/HAC, LIML and k-class regression for panel data models'', available at http://ideas.repec.org/c/boc/bocode/s456501.html.

Schaller, H. (1993), ''Asymmetric information, liquidity constraints, and Canadian investment'', *Canadian Journal of Economics,* 26: 552–574.

Seifert, B., Morris, S.A. and Bartkus, B.R. (2003), ''Comparing big givers and small givers: financial correlates of corporate philanthropy'', *Journal of Business Ethics*, 45(3): 195–211.

Seifert, B., Morris, S.A. and Bartkus, B.R. (2004), ''Having, giving, and getting: slack resources, corporate philanthropy, and firm financial performance'', *Business and Society,* 43(2): 135–161.

Sharfman, M.P. and Fernando, C.S. (2008), ''Environmental risk management and the cost of capital'', *Strategic Management Journal,* 29: 569–592.

Sharpe, S.A. (1994), "Financial market imperfections, firm leverage, and the cyclicality of employment'', *The American Economic Review,* 84(4): 1060-1074.

Shin, H. and Kim, Y. (2002), ''Agency costs and efficiency of business capital investment: evidence from quarterly capital expenditures'', *Journal of Corporate Finance,* 8: 139–58.

Shin, H. and Park, Y. (1998), ''Financing constraints and internal capital markets: Evidence from Korean Chaebols'', Working paper, California Polytechnic State University.

Smith, C. and Watts, R. (1992), ''The investment opportunity set and corporate financing, dividend and compensation policies'', *Journal of Financial Economics*, 32: 263–292.

Social Investment Forum Foundation, (2010), ''Report on socially responsible investing trends in the United States'', available at http://ussif.org/.

Spariala, M.E. (2009), ''Do financial factors affect the capital-labour ratio? Evidence from UK firm-level data'', *Journal of Banking and Finance,* 33: 1932-1947.

Spicer, B.H. (1978), ''Investors, corporate social performance and information disclosure: An empirical study'', *Accounting Review,* 53(1): 94–111.

Tobin J., (1969), "A general equilibrium approach to monetary theory", *Journal of Money Credit and Banking*, 1(1): 15-29.

Tsoutsoura, M. (2004), ''Corporate social responsibility and financial performance'', Haas School of Business, Applied Financial Project, University of California, Berkeley.

Turban, D.B. and Greening, D.W. (1997), ''Corporate social performance and organizational attractiveness to prospective employees'', *Academy of Management Journal*, 40(3): 658–672.

Waddock, S.A. and Graves, S.B. (1997), ''The corporate social performance–financial performance link'', *Strategic Management Journal,* 18: 303–319.

Wang, R. (2006), "Executive Incentives and Financial Constraints'', Working paper.

Whited, T. (1992), ''Debt, liquidity constraints, and corporate investment: Evidence from panel data'', *Journal of Finance,* 47: 425–60.

Whited, T. and Wu, G. (2006), ''Financial constraints risk'', *Review of Financial Studies,* 19: 531–559.